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# DENTAL MECHANICS.

By Harry Rose, L.D.S., Eng.

## Part IV.—Appliances and Devices for the Correction of Dental Irregularities.

(*Continued from page* 1068.)

Some idea of the condition of the mouth of the second sister may be gained by a glance at Figs. 27, 28, 29, and

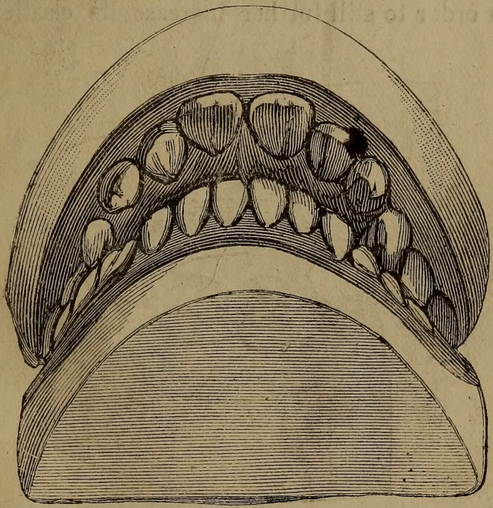


Fig. 27.

strange to say an equally good result was obtained, as in the first mentioned case, although the means employed were so different.

The appliance consisted of a vulcanite plate covering the palate and back teeth, and having extended from its anterior buccal aspects two strong springs made of hard 16 carat gold wire. In order to still further increase its elasticity it was reduced by being pulled through the draw-plate three or four holes without annealing afterwards.

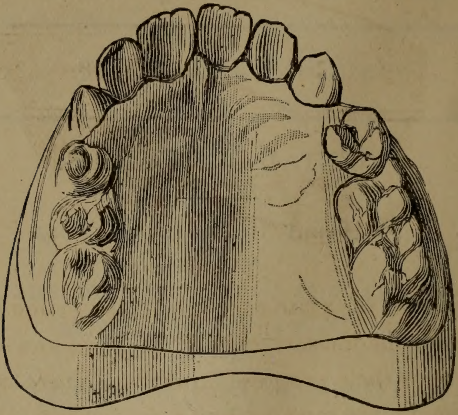


Fig. 28.

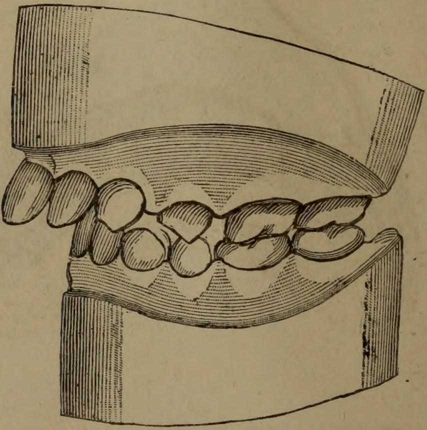


Fig. 29.

Fig. 30 shows the position of the springs which were bent in from time to time to increase the pressure.

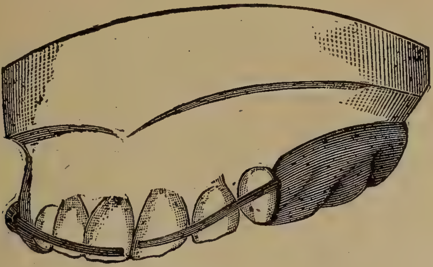
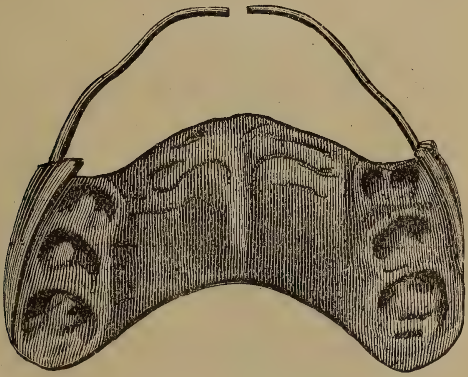


Fig. 30.

Fig. 31 shows the plate as a whole, a portion of the palate at the back of the incisors having been cut away so as not to interefere with their progress inwards. There was palpably no difference in the time occupied in getting the teeth into position, and each sister was supplied with a retention plate at the same time.



Fig, 31.

The retention plate consisted of a thick vulcanite denture covering the palate, into the extremities of which a gold wire was vulcanized; this came round the faces of the teeth and rested firmly against them.

Figs. 32 and 33 were drawn from the models on completion of the case.

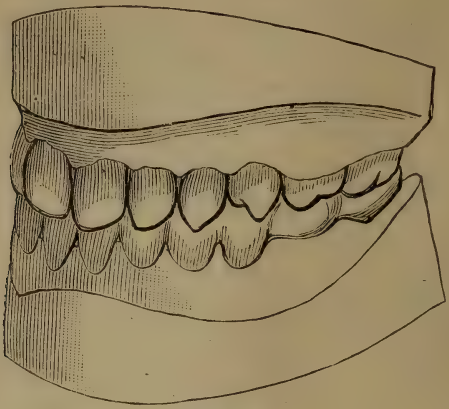


Fig. 32.

In both these cases we were fortunately working under the most favourable conditions, in as much as the anchorage on the teeth at the back of the mouth was ample for drawing the front ones backwards and inwards. In those mouths where such is not the case, say where one has to extract the six

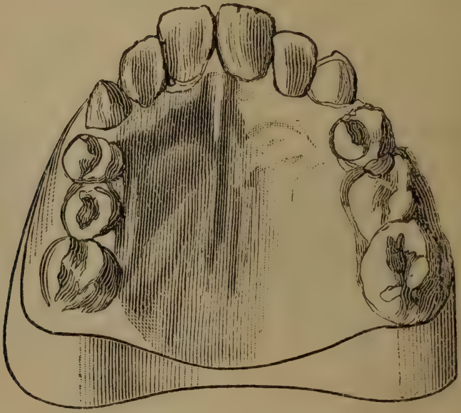


Fig. 33.

year old molars and press the bicuspids one tooth backwards, a different method must be tried. Supposing one has only the second molar teeth, the first having been recently extracted, it is as well to begin operations by wedging the the second bicuspids. These will usually yield very readily if one uses the triangular rubber strips sold at the depots for this purpose, of course beginning with a strip of moderate thickness, and then increasing it. These teeth should be moved backwards in this manner until a fair space is obtained between them and the first bicuspids. Leaving the wedge between the two bicuspids we next turn our attention to the canines, and proceed to wedge the first bicuspids after the second until a good space exists between the canines and the first bicuspids. In about a fortnight it will usually be found that a space equivalent to one tooth has been obtained, and that without interfering in any way with the second molars. Now to complete the operation and secure the space obtained, it will be found necessary to make a vulcanite plate to cover the palate and the second molars, which have now to do their share of the work by forming an anchorage to draw the first bicuspids (already loosened, and moving backwards) close up to the second. A very efficient way to do this, is to make a collar to fit the first bicuspid, leaving a little loop soldered to its lingual and labial aspects, to which strips of rubber dam can be fastened, and then ligatured to the vulcanite plate on either side of the second molar tooth. The traction exerted by these means will in a week or less bring the first bicuspid against the second, and secure the amount of space required for the bringing in of the six front teeth.

It is well when this has been effected to make a retaining plate, and let the mouth have a rest, say for three months, in order that the bicuspids may settle firmly in their sockets. After which one or other of the two methods previously described may be applied to their treatment, and that under favourable conditions.

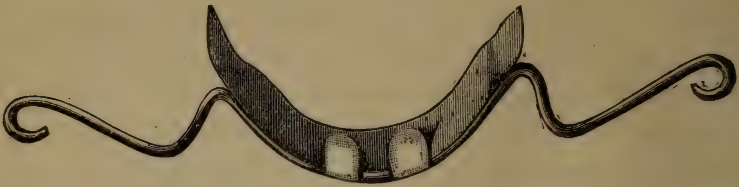


Fig. 34.

Should it be necessary, however, to proceed with the operation immediately on securing the necessary space by wedging the bicuspids, we may proceed to construct an appliance that will enable us to effect our object without in any way requiring anchorage at the back of the mouth. Such instrument will perhaps be best explained by consulting

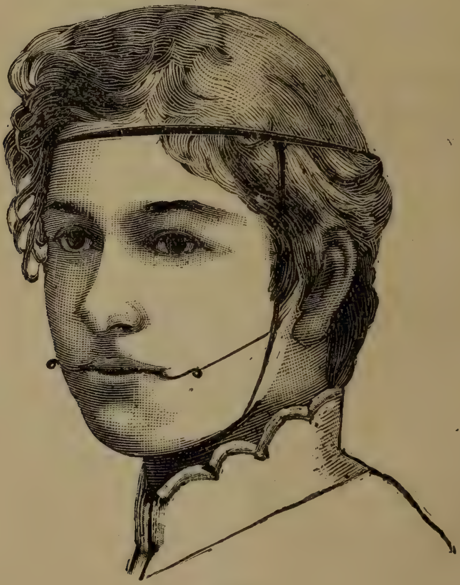


Fig. 35,

Figs. 34 and 35. The former is simply an appliance similar to Fig. 24, but with two extensions made in thick German silver; these extend in two loops and are shewn in position in Fig. 35. This illustration may be to some extent misleading, inasmuch as the artist has not given prominence to the teeth that would warrant a dentist's interference, and at the same time a ribbon should be attached to to that coming down in front of the ear, so as to pass just under the ear and fasten at the back of the neck. The band going round the forehead should be represented by a skull cap made to accurately fit and to which the ribbons, to make firm, are secured. A fixed point in front of the ear can thus be obtained and elastic bands can be secured to this point and fixed to the loops at the angles of the mouth. As an appliance such as this is rather conspicuous, it may be worn always at night and other times when convenient, and it is a very effective way for employing force where there is insufficient anchorage in the shape of teeth at the back of the mouth. This question of anchorage is one that should be taken into serious account and recognised by the student, as the forward advance of the second molars into the spaces occupied by the first, without gaining the necessary room for the bicuspids, makes a condition of affairs that is somewhat difficult to remedy.

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## TOOTHACHE REMEDY.

℞ Cocaini Hydrochlor.,
Morphiæ sulphat.,
Chloral hydrat.,
Acid. carbolic ... aa gr. x.
Aq. rosæ ... ... f ʒ x.

M. Sig.: Inject with a hypodermic syringe into the gums. (For painless tooth extraction.)

*Dominion Medical Monthly.*

# THE MECHANICAL TREATMENT OF CLEFT PALATE.

By Mr. L. W. Bennett.

Mr. Chairman and Gentlemen,—When asked by our worthy Secretary, Mr. Griffiths, to read a paper before you to-night, I was somewhat at a loss to know what I should choose as my subject. On thinking the matter out carefully, I came to the conclusion that a short discussion on the subject of the mechanical treatment of cleft palate would prove to be of interest, as, although it is not what might be called a common class of case, it is nevertheless one which occasionally crops up in private practice. I will therefore endeavour to put before you in as clear and concise a manner as possible, the various forms of the defect, and also the main points to be aimed at in the several methods of its mechanical treatment.

Cleft palate is a cengenital defect due to an arrest in the development of the palatine processes of the superior maxillary and palate bones, or of the soft palate and uvula, or both combined. The extent of the cleft may, in fact, take simply the form of a bifid uvula, or any more extensive abnormality, until you got a cleft of the uvula and both hard and soft palates. This latter form of the defect is, in the majority of cases accompanied by either single or double hare-lip. The double harelip is only found when there is a cleft on both sides of the intermaxillary bone. Perforation of the palate is similar to cleft palate except that it is not congenital, but is a result of disease. In the majority of cases it is due to syphilitic ulceration, and breaking down gummata, although occasionally, tuberculosis is responsible.

Cleft palate may cause a good deal of trouble if not properly treated. The forms of inconvenience attached to it depend largely on the age of the patient. In infancy suction and

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* Read before the Students' Society, National Dental Hospital.

deglutition are interfered with, whilst in the adult voice, articulation, taste, smell and hearing may all be affected.

To successfully treat a case of cleft palate by mechanical means, it is essential that the appliance should be made to fulfil as nearly as possible, both the appearance and function of a normal palate. It should restore the continuity of the surface of the palatine arch. There should be a correct amount of space between the upper surface of the palate and the floor of the nose. It should be also possible for the patient to cut off, at will, all communication between the mouth and the nasopharyngeal cavities, by bringing into contact the free posterior edge of the palate and the posterior wall of the pharynx.

The first thing to be done, and that an absolute necessity for the satisfactory construction of a case, is to obtain an accurate impression of the opening and the neighbouring parts of the palatal surfaces, and also of the teeth if there are any left *in situ*. Undoubtedly the best material for taking this impression is plaster of Paris. It must, however, be used with very great care, as if any excess should be allowed to enter the nasal cavity it will form a rivet which will be difficult to remove, without either damaging the impression or the soft margins of the cleft. There are various ways of avoiding this mishap. I think that probably the simplest is this: Commence by taking an impression in ordinary Stent or Godiva composition. When this has been removed from the mouth the surface should be scraped off to a slight depth all over, and replaced by a thin coating of plaster, in which a final impression can be taken without any risk of having a large amount of excess. Another method, and one which so far as I am aware, is more in vogue than the previous one, although it seems to me that it is more difficult to use, is as follows: An impression of the palatal surfaces is obtained, and any portion of the composition which may have actually entered the cleft is removed, and the surface thus formed is marked with ridges in order that there may be some guide for accurately replacing the plaster which will soon have to come in contact with it. This surface is then oiled or soaped to prevent adherence of the plaster. The cleft and nasal cavities are now filled with tolerably soft plaster which is brought down as far as the edge of the palatal surface. The impression which had been previously taken is now reinserted while the flask is soft, and left there until it is nearly hard. It is then withdrawn, leaving the plaster *in situ* but with its under surface moulded to the upper surface of the impression. The model of the cavity may now be removed, by passing it backwards through the posterior opening of the cleft, and replaced on the body of the impression ready for casting.

Having obtained an accurate model of the mouth and cleft, there are, strictly speaking, three distinct methods of procedure.

The first and simplest was invented by an English surgeon of the name of Stearns. As far as I can find out he first used it about 1847. He made a plate of gold or vulcanite, bearing on it any artificial teeth which were required to fill up any gaps in the dental arch. The plate would be made to reach about as far back as the posterior border of the hard palate. Then to this is attached a continuation of soft vela rubber, or, as is used by many practitioners, a piece of sheet elastic about one-sixteenth to one-twentieth in. in thickness, cut to somewhat the shape of the cleft. This vela or elastic is made to reach back as far as the posterior wall of the pharynx. This appliance fulfils many of the requirements of an artificial palate, and can be worn by the patient without very much inconvenience. There are, however, several rather serious drawbacks to this kind of palate. It is made of a very perishable substance, which unless kept scrupulously clean, will not only soon be destroyed, but will in a short time give off a most offensive odour. Moreover it is simply a kind of door to the cleft, and is not in any way a plug which can come into relation with the lateral margins of the cleft. I think you will also easily see that an elastic palate of this kind, attached only to one margin of the plate and not being otherwise supported, cannot possibly reproduce the resonance of the natural palate. This appliance has however, been used, and, so far as I have seen from several cases which have come under my notice, the results have been very fairly good.

The next kind of apparatus which I intend to introduce to your notice, is one which was invented by Dr. Kingsley an American medical man. He has done more in the cause of the treatment of cleft palate than any other of the men whose names have been mentioned in this connection. His book on the subject is undoubtedly the best of its kind. His appliance was somewhat in the form of a stud. When placed in position the stem of the stud passed down between the lateral boundaries of the cleft. The upper portion formed the floor of the nares, and the lower portion restored the continuity of the palatine arch. To place it in position it would be slipped in at the posterior portion of the cleft, and then it could be passed forward to its anterior margin. The material used for making that portion of the case is soft vela rubber vulcanised in metal moulds. The moulds are most easily made out of ordinary type metal. It can be conveniently held in position by being attached to a skeleton gold plate, or to an entire case according to the requirements of the mouth in question. The chief disadvantages of this means of restoring the palate are, firstly, its destructibility by the various secretions of the mouth and nose, and secondly, its want of resonance. It may, nevertheless, be used in the majority of cases with much more satisfactory results than the Stearn method.

The next and last method which I shall describe, was invented by Dr. Wilhelm Süersen, a German. He made an obturator of hard vulcanite, the forepart of which fitted the lingual aspect of the teeth and covered the normal portion of the palate. The obturator proper was made in the form of a four-sided pyramid, the base being parallel to the posterior wall of the pharynx, while the apex is directed towards the anterior part of the cleft. The inferior side is made in the same plane as the normal part of the palate, whilst the superior, which is grooved down the centre to serve as a drain for secretions, restores the floor of the nasal cavities. The two lateral surfaces come into relation with the margins of the cleft, although they do not fit tight at any point. When the muscles of the palate are contracted thus giving a lateral expansion, there is perfect occlusion along these margins. Simultaneously with this the extraction of the posterior pharyngeal muscles cause the space between the base of the pyramid and the wall of the pharynx to be completely closed, thus preventing all communication between the oral and nasal cavities. This method has several advantages over the other two, among which may be mentioned more resonance, cleanliness and indestructibility. The resonating power of this invention may be still more increased by making the plate and inferior surface of the pyramid of metal.

There are, of course, many other inventions in use, but they are mostly modifications of the three forms which I have described.

In conclusion I may say that no mechanical appliances, however beautifully made, will be of much use without the absolute co-operation of the patients themselves. If patients will not keep their cases clean,and if they only wear them when it suits them, the probability is that the work will have been wasted.

# SYPHILITIC NECROSIS OF THE ALVEOLAR PROCESS.

By A. Berlyn, L.D.S. Glas.

A. S., æt. 30 years, recently consulted me complaining of acute tenderness of his gums. On examining the mouth, I found the upper maxilla apparently quite healthy, with only four teeth standing, viz., right and left centrals and canines. In the lower jaw there was a very different state of affairs—the molars and second bicuspids on either side had been lost, and those regions were also quite healthy, but in the region of the first bicuspid right to the first bicuspid left, where all the teeth were standing a rather serious condition of affairs presented itself. The gum was acutely tender, very highly inflamed, a thick yellow pus was welling up round the necks of the teeth, which were all more or less loose, while the alveolar process appeared to be in a soft spongy condition. On enquiring into the patient's history, I found that three years ago the patient had had a severe attack of syphilis, and being a chemist's assistant, he had continually dosed himself with large quantities of mercury, in the forms of Hyd. cum creta, Hydrarg. Iodi. Rubri, and Hydrarg. Iodi. Viridi, until he became thoroughly salivated, and had lost the twenty missing teeth without operative assistance. The patient then ceased mercurial treatment and placed himself under large doses of Pot. Iod., which he continued for some considerable time. When patient consulted me he was in a very low and weak condition, in fact bordering on a state of collapse, with little or no appetite, the breath very foul and fœtid, and completely broken down with agony of mind. Hoping the sequestrum would separate itself, and not wishing to operate upon the patient while in his then low debilitated condition, I placed him under strong tonic treatment, stopped all Mercury and Pot. Iod., which he was still taking alternately, and proceeded to treat the disorder with strong antiseptic and astringent lotions. I scarified the gums, which bled profusely; daily syringed with Pot. Permang. and Zinc Lotions, most carefully and minutely cleaned each tooth, daily swabbed and cleaned round the necks of the teeth with Peroxide of Hydrogen, but all to no purpose, for the disease appeared to be spreading beyond control. I then decided to operate, and had the patient placed under chloroform. Having removed all the teeth remaining in the lower jaw, I proceeded to separate the gum completely from the inner and outer margins of the alveolar process down to the maxillary bone. The condition of the alveolar process when exposed presented a soft cheesy substance which I scraped away with a sharp spoon so completely as to leave the lower maxillary bone completely bare, I replaced the flaps of gum and prescribed the following mouthwash :—

| | | |
|---|---|---|
| R. | Zn. Chlor. ... | grs. vi. |
| | Zn. Sulph. ... | grs. iv. |
| | Morph. Acetas | grs. ii. |
| | Aq. Ad. ... | ℥ viii. |

as also Permanganate of Potash.

Within three days the mouth was well healed, and no trace whatever of any suppuration, and but very little tenderness. Within a month from the date of operation, I made the patient a temporary lower denture carrying twelve teeth, which he is now wearing with perfect comfort, and with no trace or sign of any further trouble or irritation. The case is interesting, as showing not only the danger of large doses of mercury, but also that where proper aseptic conditions are observed there is no need to wait for voluntary separation of the sequestrum, but rather to proceed to operate at once.

British Journal of Dental Science.

LONDON, JANUARY 1, 1898.

# A RETROSPECT.

The year which has just gone has been a remarkable one in many respects. It will ever be memorable for the Commemoration of the longest and most glorious reign in our annals. Although the Diamond Jubilee Celebration may not have been an unmixed blessing to all of us, yet no one can help feeling that the bonds of fellowship uniting the Anglo-Saxon race were strengthened thereby, and that it was a wonderful object-lesson to ourselves and to the world, of the solidarity of our Empire, which, we consider on the whole is a Power which makes for peace and progress. One of the most gratifying incidents of the Jubilee was the bestowal of a peerage on JOSEPH LISTER, whose beneficent discoveries are daily bearing fruit in our every-day work.

In our own specialty we have to record much that is satisfactory, as well as many things that yet require to be remedied. Several prosecutions of unregistered men have been successful as has always been the case in recent years in England, when the prosecution has been carefully prepared by inefficient hands. In the case of the Brighton prosecutions however, undertaken by a local committee, some of the defendants gained the day, owing chiefly to the unwise handling of the prosecution. In Scotland, in the case of Emslie *versus* Paterson, in which the Appellant gained his case, LORD TRAYNER laid down the ruling that neither "American Dentistry," nor "dental office" could be said to be a name which the appellant had assumed, and neither was a title, addition, or description added to his name implying special qualification for dentistry. This absurd ruling has not yet been upset, but we hope it will be. In this connection we cannot help envying our Colony of Natal which by a recent Act makes even the practice of dentistry by an unregistered man punishable by fine or imprisonment. In another case heard in the Queen's Bench, in which Mr. Spero called upon the General Medical Council to show cause why they should not place his name on the Dentists' Register, Mr. JUSTICE HAWKINS decided against the applicant, saying that having neglected to place himself on the register in proper time, he had only himself to thank. The importance of this ruling is emphasized when it is borne in mind that a large body of unregistered men is using every effort to obtain admittance to the Register, and, as will be seen by our last number, recently nearly succeeded in stealing a march on the General Medical Council, who in 1891 permanently abrogated the discretionary powers (in Clause 27 of the Dentists' Act), as to the admission of any more unregistered men to the Register. The Council has been very busy in formulating schemes for a more thorough Preliminary Examination, and for uniformity of curriculum among the various Colleges, while it is becoming more strict as regards the offence of "covering," being convinced, in spite of Sir William Thompson's unfortunate speech that "dentistry pure and simple" meant "tooth drawing,"—that our specialty is a highly scientific and technical one, and worthy to rank with other honourable professions.

We have heard no more of the attempted campaign of the *Chemist and Druggist* to "fight the dentist." They have not yet found "a suitable case to be tested in the High Court to authoritatively establish the right of chemists to undertake such dental work as it had been the custom of a large proportion of the trade for generations to fulfil." Their subquent invitation to the dentists to contest a friendly case was of course not accepted, and we do not think we shall hear anything more of the matter. The unsatisfactory decision of Mr. JUSTICE WILLIAMS as regards the "one-man company," clearly shows that an amendment of the Dental Act is necessary to protect the public from those who would evade personal responsibility by forming themselves into a limited Company.

The Local Government Board has taken dentistry under its wing to a small extent, and has issued a series of recommendations to Boards of Guardians both as to the choice of a dentist and with regard to his duties. We are glad to see these appointments are on the increase. The number of Licentiates of the various Colleges on the Register now amounts to 1186, being an increase of 94. They are now in a very fair proportion to the total number of dentists on the Register.

We have to record the deaths of many of our brethren, the most notable being Abbott, Salter, Evans and Magitôt. Though differing widely in their gifts and personality, they were all strenuous workers who will leave their footprints on the sands of time. Although we claim Magitot, he never called himself a dentist, but a surgeon practising stomatology.

The semi-centenary of chloroform has lately been celebrated, but when we recall the number of fatal dental cases in which it has been used during the past year, we hope our brethren will honour it in the breach rather than in the observance. The X rays are becoming more generally of use, and have been employed with considerable success in dental surgery, while cataphoresis, in spite of some enthusiastic panegyrics seems still to be on its probation.

Having taken a backward glance, let us now look forward with hope and confidence to a year of good work and honest endeavour, and standing thus on the threshold of the New Year, let us wish that it may be a happy and prosperous one to all of us.

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APHTHOUS STOMATITIS.—The following prescriptions ear of use in this condition.

| | | | |
|---|---|---|---|
| R | Potas. chlorat | ... | 4.0 |
| | Tinct. myrrh | ... | 3.0 |
| | Aq. destill | ... | 200.0 |

Sig.—For spraying the oral cavity, and

| | | | |
|---|---|---|---|
| R | Potas. chlorat | ... | 1.0 |
| | Aq. destill | ... | 90.0 |
| | Glycerine | ... | 10.0 |

Sig.—Give one teaspoonful every two hours.

THE WAY THE POWDER FOR OXYPHOSPHATE CEMENT IS MADE.—Pour strong nitric acid on oxide of zinc and stir until effervescence cease; then, after a few hours, heat in an ordinary porcelain crucible until red vapours cease to be be given off. The contents of the crucible should be raised to a white heat, and then be left to cool gradually. The heating and cooling processes should occupy from six to ten hours. The crucible will require to be broken away from the hard stony mass inside, which, when pounded and very finely pulverised, constitutes the cement powder. Mix this powder with syrupy phosphoric acid for use. No doubt finely powdered silica or other materials of the same nature are also added by various manufacturers.

PRELIMINARY EDUCATION.—The Education Committee of the General Medical Council has found as the result of its enquiries conducted during the past year that the minimum standard of certain of the junior examinations in general knowledge now recognised by the Council was insufficient to guarantee such a degree of general education as was desirable for persons entering on the study of a liberal profession; and that a considerable number of medical students received certificates of having passed such examinations, though they obtained low marks in particular subjects. The Committee was convinced that the general standard of the examinations was too low. Various educational authorities had also been consulted, and their general opinion was that the minimum standard of the preliminary examinations should be raised; that no difficulty stood in the way of doing so, provided due notice be given to the public; and that the effect of such a measure might be expected to have a beneficial effect on school education in general. The papers were in general of too elementary a character, being evidently adapted to the ordinary capacity of pupils of less than 15 years of age.

THE RECOMMENDATIONS OF THE EDUCATION COMMITTEE.—The Committee were of opinion that the best means of securing the object in view was, in the first instance, to insist on a higher class of examination, the preparation for which must imply more extended training and wider study, such as might fairly be expected to have been undertaken by students who had attained the age of 16. The Committee did not suggest any increase in the number of obligatory subjects to be taken up by candidates, believing that if a student stood the test of a sufficiently searching examination in English, Latin, mathematics, and in Greek, or a second modern language, he would be prepared to commence the study of the various sciences ancillary to medicine. The Committee had resolved to advise the Council to confine its recognition on and after January 1st, 1899, to such examinations as the Local and Matriculation or Entrance Examinations conducted by the universities of the United Kingdom, and to the examinations of corresponding standard held by the College of Preceptors, the Scottish Education Department, and the Intermediate Education Board of Ireland: and to intimate to other bodies in the United Kingdom, and to the Indian, Colonial, and foreign examining bodies, that on and after the same date no examination of a lower class than those above referred to would be recognised by the Council.

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SCOTLAND AND THE DENTAL CURRICULUM.—England and Ireland each have one curriculum and one examination for their respective Licences, but Bonnie Scotland has two, and means to stick to them, if possible. In the report on Dental Education presented to the General Medical Council we read, "Upon the recommendation of this Committee that the Royal College of Surgeons of Edinburgh should unite with the Faculty of Physicians and Surgeons of Glasgow, and so form one Conjoint Dental Board for Scotland, the Edinburgh College reports that the recommendation was carefully considered by the President's Council of the College, and subsequently at the statutory meeting of the College on October

20th, 1897, when it was resolved that the recommendation of this Dental Committee should neither be accepted nor even entertained by the College." The Faculty of Physicians and Surgeons of Glasgow likewise reports: 'In view of the fact that there appears to exist no statutory provision for sanctioning the suggested combination, and of the doubtful validity of a voluntary or non-statutory union of the two boards, the Faculty consider that they are at present precluded from taking action in the direction indicated by this recommendation.' "

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Wash for Fœtid Breath.—Dr. Dietrich recommends the following:—

| | | | |
|---|---|---|---|
| R | Saccharin | ... | 7 grains. |
| | Acid Salicylic | | |
| | Salol | ... | aa 3 grains. |
| | Vanilline | ... | 1 grain |
| | Rectified Spirit | | 3 ozs. |

Half a teaspoonful in half a glassful of tepid water to be used several times a day.

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A Case of Pulp-capping.—Dr. Sparks, of Kimpton, reports an instructive case in the *American Journal of Dental Science.* A girl, aged about twelve, came to have her tooth filled, on February 27th, 1890. Among other cavities was one on the anterior surface of the left lateral incisor. It was only an ordinary sized cavity, and had never given any trouble. When he removed the decay near the cutting edge, he was surprised to find he had made a slight exposure of the pulp. He capped it. It gave no trouble. On July 8th, 1891, He refilled it with cement. On March 9th, 1894, He refilled it with gold, everything being, apparently, in a satisfactory condition. Until about the new year, 1897, he would have reported this an unqualified success. At about this date the young lady came to his office complaining of severe pain in the tooth. He found the gum swollen above it, the tooth somewhat loose. The colour had remained remarkably good. The characteristic opacity was present, however, upon close inspection. This, with the other symptoms, convinced him that his grand success, as in many other cases, was an utter failure. Upon opening into the pulp chamber, pus boiled out profusely. After thoroughly cleansing and a few daily antiseptic treatments, the root was packed with cotton, saturated with eucalyptol and closed up until the 16th, when it was refilled permanently, and, so far, is perfectly comfortable.

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Suction Chamber for Absorbed Ridge.—Dr. Dienelt, in the *Office and Laboratory*, gives his method as follows:—After your plaster model is nearly dry, mix some plaster very thin, and with a fine camel's-hair pencil, build up a half-round ridge, about the width of an ordinary knitting needle, all along the highest part of your model, or what is left of the original ridge, leaving off about a quarter of an inch from the end of the previously marked off plate, on both sides, or the object will be defeated. Never wet the model, or your plaster will run where it is not wanted, while, when dry, you can guide your plaster with the pencil and build up a neat and even ridge, a very important point in taking the model from the moulding sand afterward. The work should be performed neatly and rapidly, adding a little material at a time, till the ridge is finished to your satisfaction, when finally your plate is struck up, and while trying it in, you will be surprised to find how firmly it will adhere, by means of this narrow and continuous air-chamber. The same process will hold good in rubber plates, but the model should be more thoroughly dried, to prevent the sticky base-plate from injuring the ridge. For troublesome shallow plates, already in the mouth, we would suggest the forming of a hollow ridge by means of an engine bur. He has used this process for many years, and has always found it a success in even the most desperate cases.

# Abstracts of British & Foreign Journals.

## WILLIAM HARVEY.

We take the following from a Review of Mr. D'Arcy Power's book in the *British Medical Journal.*

In 1581 Lord Lumley founded and endowed a six years course of lectures on surgery, to be given twice a week at the College of Physicians. Harvey was appointed Lumleian lecturer in the year 1615, and he held the post and performed its duties for nearly forty years. He was also Physician to St. Bartholomew's Hospital, and Physician-in-Ordinary to King James I. and afterwards to Charles I. To the latter monarch he became devotedly attached, and he followed his fortunes faithfully. In spite of the fact that he was a fashionable and Court physician, and a public lecturer on anatomy and surgery, Harvey found time to pursue long, patient, and elaborate investigations upon the circulation of the blood, not only in man, but in many species and varieties of animals, believing that human anatomy and physiology could only be rightly understood by first obtaining a complete grasp of the anatomy and the functions of life of the lower animals.

His notes for his Lumleian lecture in 1616 showthat he had even then formulated his views on the meaning of the heart beat, and the course of the blood from the arteries into the veins; but it was not till the year 1621 that he published his great work, entitled, *An Anatomical Treatise on the Movement of the Heart and Blood in Animals.* In it he begins by stating that the heart must be examined whilst it is alive, and says: "I found the task so truly arduous and so full of difficulties that I was almost tempted to think, with Fracastorius, that the movement of the heart was only to be comprehended by God. For I could neither rightly perceive at first when the systole and when the diastole took place, nor when and where dilatation and contraction occurred, by reason of the rapidity of the movement, which in many animals is accomplished in the twinkling of an eye, coming and going like a flash of lightning. At length, by using greater and daily diligence and investigation, making frequent inspection of many and various animals, and collating numerous observations, I thought that I had attained to the truth... and that I had discovered what I so much desired—both the movement and the use of the heart and arteries. From that time I have not hesitated to expose my views upon these subjects, not only in private to my friends, but also in public in my anatomical lectures, after the manner of the Academy of old. These views, as usual, pleased some more, others less; some chid and calumniated me, and laid it to me as a crime that I had dared to depart from the precepts and opinion of all anatomists; others desired further explanations of the novelties, which they said were both worthy of consideration, and might perchance be found of signal use."

Harvey proceeds to describe clearly the action of the ventricles and auricles of the heart in diastole and systole, the circulation of the blood through the lungs, its course through the arteries of the trunk and its return to the heart by means of the veins. With the exception of the part played by the capillaries, which was revealed later by means of the microscope, no subsequent anatomist has been able to add to or improve the classic description of the circulation of the blood and the movements of the heart given by Harvey.

That his final conclusions were supported by innumerable observations on the lower animals is proved by a modest allusion to his labours in this field: "I have also observed," he says, "that nearly all animals have truly a heart, not the larger creatures only and those that have red blood, but the smaller and pale-blooded ones also, such as slugs, snails, scallops, shrimps, crabs, crayfish, and many others; nay, even in wasps, hornets, and flies, I have, with the aid of a magnifying glass and at the upper part of what is called the tail, both seen the heart pulsating, and shown it to many others."

After the publication of this epoch-making treatise, it is said that Harvey "fell mightily in his practice," for it was believed by the vulgar that he was crack-brained, and all the physicians were against him; but with the true scientific spirit he believed that truth must prevail, and he braved the consequences of proclaiming it. "I tremble," he says, "lest I have mankind at large for my enemies, so much doth wont and custom become a second nature. Doctrine once sown strikes deeply its root, and respect for antiquity influences all men. Still, the die is cast, and my trust is in my love of truth and the candour of cultivated minds."

Abuse and malign misrepresentation he met with calm patience and wise silence. "To return evil speaking with evil speaking," he says, "I hold to be unworthy in a philosopher and searcher after truth. I believe that I shall do better and more advisedly if I meet so many indications of ill breeding with the light of faithful and conclusive observation."

It is pleasant to turn from the picture of Harvey contending for the truth among the ignorant, the abusive, and the vainglorious to that of the great master and well-beloved physician in the evening of his days at Oxford ; busy directing the erection of the library and museum which he presented to the College of Physicians, corresponding in stately English with eminent professors of foreign universities, and surrounded by his brothers and their children, to all of whom he was warmly attached. He had lived to see his grand discovery of the circulation of the blood universally accepted and inculcated as a canon in most of the medical schools of Europe ; and he is said by Hobbes to have been "the only one that conquered envy in his lifetime and saw his new doctrine everywhere established."

# INCISOR OR CUSPID CROWN.

The way to make an open-face crown for a cuspid or incisor, that will fit perfectly, is as follows: Take, for instance, a central incisor on the right side ; the left lateral and cuspid are out, and you want to make an open-face crown for the central. First, get your strip of gold a little wider than the tooth is long, and a little longer than will go around the tooth. Bring it around the tooth and with a pair of flat pliers pinch and draw tightly around it until it fits perfectly. Hold it tight and with another pair of pliers, of the same kind, draw or pinch the gold down at the point of the tooth. Stick a pin through the edges, remove, and solder together. Trim edges and cut out the face in the usual way. You will find that it fits perfectly and will not take five minutes to make the crown in this way. If the tooth is broken off at one corner build it up with cement.

*Ohio Dental Journal.*

# TWO CASES OF CLEFT PALATE IN CHILDREN.

Mr. Arbuthnot Lane operated on two children a few weeks' old for complete cleft palate. The methods adopted were :—After the patients had been placed under the influence of an anæsthetic, the gag, which Mr. Lane always uses, was fixed in position ; this gag is a spring gag, and by means of minute teeth attached to the small plates, which rest on the gum at its extreme posterior limit, is absolutely self-retaining and requires no attention after its introduction. The tongue was drawn forward by means of tongue forceps. An incision was then made through the mucous membrane and periosteum along the alveolar margin of that side to which the nasal septum was attached, this was carried back along the extreme outer limit of the soft palate ; next, along its lower free margin by means of an elevator, the muco-periosteum was turned inwards off the bone, great care being taken not to damage the continuity of this flap with that of the mucous membrane covering the septum nasi which formed its attachment ; as this flap was being turned back the descending palatine vessels and nerves were raised in a single periosteal sheath, this sheath being, with its contents cut as long as possible, a Spencer Wells forceps was then applied to it and it was twisted ; by this means practically all hæmorrhage was avoided. The mucous membrane with the thick subjacent layer of glandular and lymphatic tissue was then raised from the under surface of the soft palate by means of a knife with a round edge, made in this form in order to avoid puncture of the flap. As a result of this a large single flap formed by the mucous membrane and subjacent soft parts from the under surface of the roof of the mouth on one side was raised and remained attached to the margin of the cleft in the hard and soft palate. An incision was now made along the margin of the cleft in the hard palate on the opposite side, and through this incision the muco-periosteum was raised from the bone by means of an elevator for about a breadth of a quarter of an inch ; a thread was then passed through the tip of the uvula on the same side, and, by pulling on this, the posterior surface of the soft palate was exposed ; an incision was made through the mucous membrane on this aspect parallel to the margin of the cleft and at a distance of about an eighth of an inch, the intervening mucous membrane was raised and turned inwards from the back of the palate, forming, with the raw surface, an oblong flap. The edge of the large flap was introduced beneath the edge of the elevated muco-periosteum covering the hard palate on the opposite side, and was retained there by a double row of sutures; the portion of the flap corresponding to the soft palate was brought into accurate apposition with the oblong raw surface, already referred to, on the opposite side of the cleft, and was retained in a similar manner by a double row of sutures. By means of these procedures the flaps were brought into continuity over a considerable area, and were placed in such a position that immediate union could take place very readily, since the double row of sutures obviated any movement of the intervening raw surfaces upon one another, and there was absolutely no strain or tension upon them.

In one of the cases the cleft was complete on one side of the septum, while the cleft extended forwards for some distance on the other side of the septum. Indeed in this case it seemed wise not to attempt the complete closure on a single occasion. The method described above was pursued in these cases, namely, one of a large flap from one side, which was tucked in beneath the raw surface of the muco periosteum of the opposite side, this being attained by raising it from the hard palate and splitting the soft palate. At the same time, the surgeon should recognise that he must be prepared to obtain his flaps from any portion of the mouth or nose, or to use any method other than the flap in order to obtain the result he desires. Mr. Lane said that in many cases owing to this not affording a sufficiently broad flap, the incision is made outside the alveolus and the tissues of the gum used so as to increase its breadth. Mr. Lane pointed out that the cleft in the hard palate was closed with comparative ease, but that there was a tendency for a portion of the soft palate to break down, and to necessitate subsequent interference which is considerably facilitated by the narrowing up of the remaining cleft resulting from the first operation. He said that although he preferred to operate during the fourth week of life he was by no means certain that an operation might not with advantage be performed at even an earlier date; a great deal, of course, he remarked, depends on the condition of the cleft and the vitality and vigour of the infant. The children, he pointed out, bear the operation very well, and on no occasion has their condition caused him any anxiety in consequence of the operation.

*Medical Press.*

# TREATMENT OF PROTRUSION OF THE LOWER TEETH.

By Dr. J. N. Farrar, New York.

Anterior displacement of the lower jaw resulting from loss of side teeth (thus permitting the two jaws to approach nearer each other than is normal) causing the front lower teeth to slide, scissors like, upon the labial surfaces of the upper teeth, may sometimes be corrected by so grinding the front teeth that a part of the ends of these teeth will occlude and gradually slide each other into their proper relations. When the abnormality, however, is caused by dispoportion in the amount of alveolar tissue constituting the alveolar ridge, or by two short side teeth causing a difference between the planes of the antagonizing ends of the side and front teeth, it is found that the lower ones are generally found so far anterior to the upper that grinding would not often prove beneficial. If the difference between the planes of the arches is too great to correct by grinding, the teeth of the two jaws should be moved in the directions that will cause the best outlines of the face, and then force the proper occlusion by grinding the interfering parts.

For correcting a displaced lower jaw one of the best plans is by the use of gold thimble-crowns, cemented upon the side teeth ; the heading of the thimbles being so inclined that by occlusion the lower jaw will tend to slide posteriorly.

In cases where the upper front teeth require to be moved forward and outward it may be done by causing absorption, or by springing the outer plates of the sockets outward until the best possible contour of the upper lip is accomplished. The object of this is not only to place the front upper and lower teeth in better relation to each other, but, if possible, to move anteriorly and make more prominent the bony foundation of the upper part of the sunken upper lip and the sunken alæ of the nose. This latter change, moving of the bone, however,cannot always be accomplished without injury to some anterior tooth. This arises from too great strain upon the lateral incisors. In order to form the best outline or contour of both lips in such cases it is sometimes best, all things considered, to let the lower lip fall a short distance, by moving posteriorly the lower front teeth. When there are no missing side teeth, it is sometimes necessary to extract one tooth on each side to permit the moving of the front teeth posteriorly.

Occasionally, however, extraction of one of the incisors (lower) and closing the space thus made by forcing posteriorly the others will suffice for this end. To bring about the highest degree of facial beauty cannot always be done by following strictly the rules laid down by sculpture, where there is abundance of material and opportunity to obtain any effect desired ; but the aim should always be to obtain the highest possibilities toward harmony of all the features that the conditions of the case may permit.

*Protrudiug Lower and Receding Upper Teeth Corrected by an Inclined Plane.*—To show the value of an inclined plane, the case of a girl of about thirteen years of age is given. Her side teeth, molars, cuspids, and bicuspids were very short, and although the roots were not fully developed, the side teeth had erupted sufficiently to occlude properly. The lower incisors, however, were more than an inch anterior to their proper places and occluded anterior to the upper incisors, the wrong contact causing both the upper and lower teeth to continue to move each other still farther out of place. The lower lip, as a consequence, was of course too prominent, and the upper one not sufficiently so.

The patient could by effort draw back the lower jaw so as to permit the edges of the upper and lower incisors to occlude but could not draw it sufficiently back to enable the lower incisors to occlude posterior to the upper ones.

All that was necessary to give the short side teeth an opportunity to further erupt, and at the same time force the lower incisors backward and the upper ones forward, was to wear an inclined plane on the lower teeth. This plane was bevelled to such an acute angle that all the incisors, upper and lower, moved at the same time oppositely.

*Dental News.*

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## DENTIFRICE.

The following makes an agreeable toothpaste :

| | |
|---|---|
| Cretæ præcip. ... ... | ʒiv. |
| Pulv. carmini ... ... | ℈ss. |
| Pulv. iridis ... ... | ℥ss. |
| Pulv. saponis ... ... | ʒij. |
| Otto rosæ ... ... ... | gtt. x. |
| Glycerini ... ... ... | ℥iij. |
| Aq. .. ... ... | q.s. ut fiat. |

# CATAPHORESIS.

By Henry W. Gillett, D.M.D., Newport, R.I.

One of the directions in which special investigation is desirable relates to the time necessary to produce the anæsthetic effect in sensitive dentine. In two years we seem to have made little or no progress in that feature. The profundity of effect in any given case seems to be strictly proportional to the quantity, or rather density, of current flow and to the length of application. It seems improbable that this should be changed, but it is still to be hoped that some drug or combination of drugs, or some previous preparation of the tooth, may cut down the time to a lower limit. Individual cases are common enough where six or eight minutes application is ample, but so are cases requiring thirty or forty minutes.

The success of the process as a means of controlling sensitiveness of dentine is so abundantly proved by the reports of a large number of operators that it seems difficult to understand the position of those who meet with little or no success.

Up to within three months the essayist has felt free to say thot he doubted the existence of a case of sensitive dentine that would not yield to cocain cataphoresis when properly applied.

There are, however, certain cases where it seems very doubtful if any length of application will succeed. These cases, in the speaker's experience, all come in the class of teeth where there is evidence of the deposit of secondary dentine of dense quality, the irregularity of its structure seemingly proving an insurmountable barrier in some cases to the passage of sufficient current. Of course, the cases where the mechanical difficulties of insulation are practically insurmountable are thrown out of consideration by that fact.

One unique case met with recently deserves a moment's attention. In this subject there is a predisposition to inflammatory conditions about the attachments of the teeth. The preparation of a moderately large cavity or the packing of gold in a small one is followed by a pronounced pericementitis of such proportions as to forbid gold work. The marked sensitiveness of the dentine in this case yielded in a normal manner to cocain cataphoresis, but the pericementitis was increased to a marked degree by the irritation from the passing current, and when, two days later, a second attempt was made on some of the same teeth, the pain located in the pericemental region compelled the abandonment of the treatment. Apparently the most prolific source of failure is the incomplete preparation of the operator for his work. At the present time it is inexcusable for the operator to attempt the use of the process without careful study of the readily accessible literature of the subject, and without familiarizing himself with the apparatus, methods, and the possibitities.

Having done this, there can be no question but what the process is one which will be found useful in a fair proportion of cases in any practice where an effort is made to maintain a high professional standard.

The most favourable cases for the use of the process, as regards quick results, are those presented by children, and by the subjects with the teeth usually described as soft. Cavities which have not been previously filled generally yield more easily than those that have been filled, although this may not hold good in cavities where there has been a good deal of new decay under the filling.

The teeth that cut hard and those that have had fairly tight fillings in them for some time present more difficulty and require longer time.

As to the danger of injuring the dental pulp and other tissues, it is axiomatic that any powerful drug or application is capable of doing injury if unwisely used. If a pulp is covered by only a thin layer of dentine and a prolonged application of current is made, if, as the pulp becomes fully anæsthetised and able to bear it, the current strength is increased unduly, it seems probable that injury would follow. If in bleaching a tooth by this process a leak is left, so that the current and drug can pass through the gum, it will of course be affected injuriously. I cannot conceive, however, that an intelligent use of the process can lead to ill results.

There certainly seems none to be anticipated in dentine or in the pulp. I have as yet seen no instance in which I could trace an undesirable sequence to the effect of the current or the cocain. One case was recently reported in which the patient, a member of this Society, I think, felt that the pulp had been poisoned by cocain. One well-established case of this sort would demand our most careful study, but in view of the hundreds of cases where the cumulative evidence is that no such result is probable, it would seem that the evidence that the ill result was due to the cocain needs careful analysis, and that all other possibilities must be first considered.

It is necessary to bear in mind that the cavity sensitive enough to call for cataphoric treatment will probably be sensitive to thermal changes if a metallic filling is placed in contact with the dentine and that all cavities that have been anæsthetised should have a non-conducting layer placed under such filling.

Some one has raised the question as to whether or not the life of the dentine is destroyed in the anæsthetized layer. A very little experience removes the fear of this, since the sensitiveness soon returns to the dentine no matter how profound the anæsthesia has been.

The use of the process for bleaching seems to find favour with many who have used it, but some claim it is not a quicker process for such work than others that are at our command. It certainly does produce very positive results when used with suitably prepared solutions. For anæsthesia of soft tissues the process does not seem to the essayist to be likely to supplant, in ordinary practice, other methods previously in use. I note in a recent society report that the process is scored because it failed to produce sufficient anæsthesia for painless extraction of a molar tooth. Such work is entirely outside the province of cataphoresis, and even with prolonged application success should not be expected. It is very unlikely that the current will pass through the alveolus so long as it is free to follow the soft tissues.

For operations on the gums the process may often be of service, although the hypodermic syringe is frequently more prompt and more readily used. For the application of other drugs to the gum, some of which have been mentioned, and for the treatment of chronic and otherwise incurable abscesses, the process presents interesting possibilities, and reports are beginning to appear concerning such use of it.

It is well to bear in mind that the cataphoric use of iodine and similar drugs calls for extreme caution, and that such drugs, if carried deeply into the tissues, may produce disastrous results.

The dry battery cell presents an eminently safe source of supply, and has the merit of being feasible in any location. Unfortunately, the dry cell does not prove as reliable as the dealers would have us believe. Very often a set of cells will give entire satisfaction for a year, or even two or three years; but on the other hand, a single cell will sometimes give out and interfere with the efficiency of the whole set just when you want it most.

A little time and skill will remedy this, if you have testing apparatus. The first is often lacking, and the second is rarely found in a dental office at present.

*Dental Cosmos.*

## A CASE OF SYPHILITIC CHANCRE OF THE CHEEK FROM A BITE.

By H. De Meric, M.R.C.S., Surgeon to the French Hospital.

In most examples of extra-genital chancres we rarely can ascertain the real and definite cause of the contagion, therefore the following case is of great interest, not only because chancre of the cheek is very seldom seen (personally, I have never met with one before amongst the thousands of venereal cases at the French Hospital), but also because the source of infection is definite and authentic. Unfortunately I have been unable to get hold of the man who bit my patient: it would have been curious to note the exact state and position of the lesions, which necessarily must have existed in his mouth or throat. It is evident that *plaques muqueuses* must have been present on some part of mucous membrane where the saliva could come into contact with them, *for, although it has been abundantly proved that the saliva of a syphilitic person does not produce the disease when inoculated* on another person, that secretion is quite capable of carrying the infection from a *plaque muqueuse,* as is often seen in cases of chancre of the lips from kissing; it is then, as Mauriac says, "defiled by a virulent blend."

*Medical Press.*

Mixture for Frosting Glass.—About one part of ammonium fluoride to two parts of fluoric acid is the best proportion to use.

# SAVING AN OLD TOOTH.

By Ernest McGaffey.

The doctor stretched my mouth open until he could see my heart beat. Then he said cautiously, "I think we can save that tooth." Running a long, inquisitive wire into the tooth to the depth of about sixteen inches, he stirred up something known as a "nerve." In response to my fervent yell he asked, "Does that hurt?" I wiped tears out of my eyes and simply said "Yes." Then he got some Zahn-Artzt crowbars and pried here and there at the tooth, occasionally waking up that cussed nerve which had been growling ever since at its unceremonious handling. Then he said: "We will have to kill the nerve first, and fill the tooth afterwards."

"How long will that take?" I asked anxiously.

"Oh, you can't tell about that," he replied; "you can have it pulled if you prefer it," he added. I went to the glass and smiled at myself. It was as I feared. If that tooth was yanked out my smile was ruined.

There is nothing so unpleasant as a fore-shortened smile. The absence of the tooth at either end gives it a wolfish character. A tooth out of the centre of a smile simply wrecks it. No, I could not afford to have that tooth pulled.

Stimulated then by the strongest ingredient in the male character, viz.: vanity, I resolved to take my medicine, and so the pact was made.

I began to make regular trips to his office, and soon became inured to scenes that at first chilled the glad blood in my veins and caused the soft and significant goose-pimples to start from my flesh as a trumpet call. People with a strained expression of countenance met there, and the doctor's little room, which I had mentally named the chamber of horrors, re-echoed with groans, yells and imprecations. And yet he was a gentle hearted man. He did not revel in those pandemoniums of whoops and sobs, but the stern necessities of dentistry compelled them.

His instruments of torture, called by courtesy dental tools, were many and varied. He was very skilful in his profession, and when he took a job he did it in first class style. The dental tools are simply copies in miniature of articles used in the Spanish Inquisition and on refractory prisoners in the Tower of London. There are monkey wrenches, raspers, files, gouges, cleavers, picks, squeezers, drills, daggers, little crowbars, punches, chisels, pincers, and long wire feelers with prehensile, palpitating tips that can reach down through the roots of a throbbing tooth and fish up a yell from your inner consciousness. When a painstaking dentist cannot hurt you with the cold steel, he lights a small alcohol lamp, and heats one of his little spades red hot, and hovers over you with an expectant smile. Then he deftly inserts this into your mouth, and when you give a yell he says, "Does that hurt?"

Well, the first thing to do was to kill the nerve. The nerve is a long, starved angle-worm growth that starts in the tooth somewhere and goes down and up with three distinct tentacles or feelers. One of these connects with your brain, one with you heart and the other with your soul. Every time the nerve is touched an electric shock goes to each of these terminal points, and you feel as if you had been shot, stabbed and burned with a hot iron at one and the same time.

The doctor toyed with this nerve of mine for some weeks. Whenever the combination was made I used to kick out with one foot and cry "Ow!" or grab his hand and say appealingly, "Oh, don't." Then he would say, "We won't hurt you."

Sometimes he would lull me into a fancied security and I would be counting three hundred, or saying to myself, "Even this will pass away," when all of a sudden four thousand rattlesnakes would dart their venom into me simultaneously, a hundred mules would kick me, a score of bumble-bees would sock their stingers into me, and the world would come to an end. Then I would know that he had stepped on the nerve with the "teaser." The "teaser" is the boss "feeler," being fine as a horse-hair and of the most undoubted yell-producing power.

After a long while the nerve capitulated. I had lost eleven pounds in the process, but a great gain had been made. The tooth was now as tender as a mush and milk poultice, and even to tickle it with an ostrich tip would produce exquisite agony. He used to sooth it from time to time with various lotions, and finally he began to quarry out the dead bone a little. This was gruesome work, for there were tender places all over the tooth. as thick as spots on a leopard, and every time he jammed a chisel into one of them I almost fainted. I was kept in a continuous cold sweat for weeks thinking about it before I went, going through with it while I was at the office, and thinking about it after I had left.

After he had amused himself by digging and blasting out a lot of little galleries in the upper part of the tooth he began to "treat" the root apertures.

This is a most ingenious and refined cruelty, and by some dentists is preferred even to nerve killing. The process is to first feel around with the "teaser" on the sensitive roots; next to put a little cotton dipped in carbolic or nitric acid, creosote or turpentine, around the "teaser," and stick it away down into the same place. This hurts powerfully. It cleanses the roots of impurities, though. A lighted match would be less painful, but the aperature is not large enough to admit one. After this some cotton filling is stuffed in, and you are told to come back in three days. That night you awake at twelve o'clock with "your soul in arms and eager for the fray." You dig out all the filling and pace up and down the room, saying at intervals, "Oh, gosh! why didn't I have it pulled?"

Then you go back and the treatment is renewed. The doctor varied the upper filling by putting in hard rubber filling after awhile. This is put in soft and hot, and hardens when it gets cold.

When you wake up with this hurting you at night, you can't get it out. A red hot hairpin may get some of it out, but you are liable to glance off and get your gums into the sear and yellow. So you generally recoup by taking the Lord's name, as some say, in vain, but it soothes you, anyway.

When the roots are ready to fill, a gladsome joy pervades your entire system. The birds sing, the skies are bright, roses bloom, men and women are better, the whole world has changed in the twinkling of an eye. The day the roots are filled you go home and kiss your mother, and eat your supper on both sides of your mouth. For, mark you, when a tooth is being filled, the jaw it adorns is practically side-tracked until the crucifixion is over.

The last scene in the drama was when the doctor put in the top filling. The roots had already been plugged with a red putty which had hardened into a regular tooth cement. I lay back in the chair and the tap, tap of the hammer and punch sounded as melodious as Joaquin Miller's line of "A woodpecker pounded a pine top shell."

I was wrapped in a dream of delicious joy. Not like some of my acquaintances would I be forced to launch myself into society with a fragmentary misfit smile. No, indeed. And when the whole thing was through I shook the dock's hand, and he told me he had never meant all along to so kill me by inches, but that dentistry was dentistry.

Then I went to the glass and smiled.—*Chicago Herald.*

## EXTRACTION OF TEETH AND FACIAL PARALYSIS.

In the *Wiener Klinische Rundschau* a paper on this subject has been published by Dr. Frankl. Hochwart, in which he gives an account of six cases which he has observed. In the first case the patient had had an attack of facial paralysis seven years before, and the second attack, which affected the same side, came on the day after the extraction of a tooth also on that side. In the next three cases complete facial paralysis came on a few days after extraction of teeth and without any other complication, and in these cases the paralysis was on the same side as the extraction. So it was in the sixth case, while in the fifth it was on the opposite side. Dr. Hochwart does not regard the actual extraction as the direct cause of the paralysis, but rather the condition of inflammation which renders extraction necessary or, at least, desirable; and he points out the fact that injury to a tooth may cause paralysis in any one with a predisposition, as was the case in a young woman who suffered from a third attack of facial paralysis after the accidental breaking of an incisor. He also thinks that inflammation about the teeth may cause paralysis even if extraction has not been done.—*Lancet.*

## CALCULUS DISEASE OF THE SALIVARY GLAND.

Mr. W. G. Spencer has put on record the case of a girl 20 years of age, who suffered from obstruction of Wharton's duct and inflamation of the submaxillary salivary gland. The duct was incised, and bodies like rice grains escaped; the duct was afterwards scraped out, and later the gland was excised. On microscopic section the secondary ducts of the glands were discovered to be full of small spheroidal calculi, composed chiefly of carbonate of lime. A similar case has been recorded by Dr. Dundas Grant.

## ESSENTIALS TO A DENTIST.

Dr. J. G. W. Werner, Boston.

Practising dentistry, like most indoor occupations, has its detrimental effects ; its tends toward short life instead of longevity ; and it becomes our duty to counteract the injurious effect that our calling produces. In a general way, we may say that dentists lock pale; have a tendency to nervousness ; are variably dyspeptic ; have an enfeebled circulation, heart-action, and respiration, acquire a contracted chest, and are short-breathed.

When we take into consideration our contracted position at the chair ; the inhaling into our lungs of the exhalations from the patient, such exhalations containing one of the most poisonous known alkaloids or ptomaines in existence ; as well as the general nervous, strained condition that we are in while doing minute, delicate work, and all the time trying not to hurt ; or, if we do inflict pain, to have a sympathetic perception of it ; it is not strange that all these should produce an enfeebled condition of health. We must see the necessity of regular out-door exercise.

For years I have made it a point to work in a gymnasium ; to keep an erect posture ; to expand the chest by practising deep and full respiration ; and have endeavoured to be out-of-doors at least two hours out of the twenty-four, either walking, riding horseback or bicycling.

From years of personal experience I know the great benefit and tonic effect of regular daily cold water bathing. Nothing rests me more than to get into a profuse perspiration from physical exercise and to take a quick cold bath afterward.

If we wish to keep in good health we must eliminate from the system the used-up, broken-down, and effete matter ; and we must not forget that through the skin, with its miles of eliminating and perspiratory ducts, is one of the best ways to accomplish this object.

As professional men, we cannot place too high an estimate on the great importance of unimpaired health. Good health so often means pure morals, cheerfulness, helpfulness, wholesomeness in every direction. Though I have spoken of good health last, I believe it is of almost the first importance, and in recapitulation, I might say that some of the important essentials of a successful practitioner are first, health ; second, tact ; third, professional skill, conscientiousness and ability ; fourth, integrity and moral and personal purity ; and fifth, a high aim. *International.*

# Reports of Societies.

## STUDENTS' SOCIETY, NATIONAL DENTAL HOSPITAL AND COLLEGE.

The last ordinary meeting of this Society was held on the evening of Monday, December 13, 1897. The President, Dr. G. Cunningham, being unable to be present, it was proposed by Mr. Bobinsky, and seconded by Mr. Thorn, that Mr. S. Rose take the chair.

The proposition haviag been carried unanimously, Mr. S. Rose occupied the chair.

The minutes of the last meeting were read and confirmed, and visitors were welcomed.

The Hon. Sec., Mr. H. M. Griffiths then read a letter which he had received during the month from a Mr. Ricardo, a dental surgeon of Venezuela, asking that he and his father might be made Honorary Members of the Society. After a short discussion, a resolution proposed by Mr. Farmer, and seconded by Mr. Bennett was agreed to, that the proposal be not agreed to.

The thanks of the Society are due to Messrs. Ash & Co., for the translation of the letter which was written in Spanish.

On Casual Communications being called for, Mr. Burton shewed a very crude obturator which was made of silver, but which had been worn successfully for 14 years,

Mr. Farmer shewed two models showing well developed supernumerary teeth, and also a model showing a first right upper bicuspid extracted from a child of seven on account of its growing into the cheek.

The Chairman then called on Mr. Bennett for his paper on the Mechanical Treatment of Cleft Palate.

In the discussion that followed :

Mr. S. Rose said that a way he had found useful when possible, was to take an ordinary impression in compo and make a vulcanite plate with clasps to it, to which he fixed a gutta percha extension. He then covered the extension with plaster of Paris and took impression of cleft.

Mr. Farmer remarked that the subject was a most difficult one to write about or treat. The impression was very often the most difficult part of the operation, and a good model was necessary, as without it no appliance would be of use. He himself believed in trying in appliances before finishing. In taking an impression the thicker the plaster the better, as if it broke, the points could be fitted together more easily than if the plaster were thin.

Mr. MUST spoke about cleft palate in children with one or two methods of treatment.

Mr. BURTON also spoke regarding the advantage of obturators in acquired cleft palate.

Mr. BENNET having replied, a hearty vote of thanks to him for his paper, and to Mr. S. Rose for having undertaken the duties of Chairman terminated the evening.

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# Dental News.

## EDINBURGH DENTAL STUDENTS' SOCIETY.

The "Annual Smoker" of the Edinburgh Dental Students' Society was held on Friday December 3rd, in the Windsor. In the unavoidable absence of Dr. James. Dr. William Craig, one of the honorary Presidents of the Society genially consented to take the chair, and among those present throughout the evening, were the Dean of the Dental School, and a number of the teaching staff. At the outset the room was comfortably filled, but later even standing room could scarcely be obtained for several members and their friends. Songs were contributed by dental students, Messrs. Cameron, Baxter, Pollock, Sutcliffe, Turnbull, Common, and Murray. Banjo solos by Messrs. Bromley and Elen, with pianoforte selections from Messrs. Bellman and J. Douglas Logan, L.D.S. Mr. Cyriax gave several songs and musical sketches in his usual inimitable manner, while in recitation Mr. Finlay with "The last Shot" brought down the house.

On the whole the concert was a decided success, everyone retiring full of good spirits, and the thanks of all the students are due to the energetic members of the Smoker Committee, who not only arranged the musical programme, but efficiently undertook the onerous duties of stewards throughout the evening.

## DR. EVANS'S WILLS.

That strange and inexplicable personage, the late Dr. Thomas Evans, has, it appears, left several wills. Possibly his excessive precaution may only lead to legal complications. The doctor's great aim appears to have been to disinherit his nephew, John Evans, well known in Paris society as the Marquis d'Oyley, who appears to have absorbed much of his practice, and to have been much honoured by kings and princes. These the uncle looked upon as his exclusive appanage. The fortune now appears to be something over a million and a half sterling. Dr. Theodore Evans, another nephew, and his family, are handsomely provided for. There is also an adopted son. and other kinsfolk. As for the charities to which so much was promised, they will be disappointed. "Dr. Tom" was very fond of inspecting institutions, and of being saluted as a leaver of future bequests. Dr. Crane, his faithful friend, will, it is hoped, receive the recompense he deserves for a life of rather purgatorial devotedness. People are, of course, asking whether the "American Register" will go on. It was never a lucrative publication. But it posed the doctor as a literary patron, and his great ambition would have been to have been a real newspaper proprietor. His money was not made by dentistry. He was the tipster for building and "Haussmannising" of Napoleon III, and he was always going to and fro on semi—or one might say "semi-demi" diplomatic missions, where crowned heads did not like to show themselves. When his death was known his papers were sealed up with wondrous alacrity by the French authorities. The memoirs of this "Pecksniff" of European Courts would be good reading.

## SUICIDE OF A DENTIST.

Mr. Eugene Aguste Leon Victor Duval de Stains died on the 24th ult. at the London Temperance Hospital, Hampstead road, under very sad circumstances. He was a dentist, and carried on his work and resided for many years at 203, Hampstead-road. Of late he had been depressed and in bad health, and a few days before his death he was found in his room bleeding from a wound in his throat. There was a razor by his side, but whether the injury was intentionally inflicted or not was not clear. He was promptly removed to the London Temperance Hospital, and for a time it was thought that he would recover, but pneumonia supervened, which, with the injuries to the throat, was the cause of his death. The coroner's inquiry was held on Friday afternoon at the St. Pancras Court by Dr. G. Danford Thomas, when the evidence showed that the wound in the throat was self-inflicted, and a verdict attributing death to pneumonia, injuries to the throat with a razor, and suicide while of unsound mind was returned. Hewas locally known as Mr. Eugene Duval, and was in his 43rd year, and an accomplished cornet player.

The funeral took place at Manor Park Cemetery on Tuesday, only the immediate relatives of the deceased being present. Among the wreaths on the coffin was one from the Cavendish Band, of which Mr. Duval was a member.

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## NISI PRIUS COURT.

(Before Mr. Justice Bruce, without a jury).

## TOOTH DRAWING AT BOLTON.—ALLEGED FRACTURE OF A JAW.

A peculiar action for damages, in which plaintiff, James Isherwood, a Bolton cotton operative, claimed compensation from James Clewes, manufacturer of artificial teeth, Rishton-lane, Bolton, for injuries alleged to have been sustained through the latter's negligence, was heard. In drawing one of plaintiff's teeth, defendant, it was stated, fractured the jaw to such an extent that about half an inch of it, owing to the operation, had since wasted away. Mr. Langdon appeared for the plaintiff, and Mr. C. A. Russell, Q.C., and Mr. Overend Evans represented the defendant. Mr. Langdon stated that on March 31st last, plaintiff called upon Mr. Clewes to have a tooth drawn. On this occasion a front incisor was pulled out and a bit of the jaw "snipped off." Inflammation followed, and on Saturday, April 3rd, Mr. Isherwood consulted Dr. Gilchrist, who told him he was suffering from acute inflammation. On the following Sunday morning, at three o'clock, the pain was so intense that plaintiff went again to Mr. Clewes. Mr. Clewes remarked that he did not feel in form for drawing teeth at that time, but after making examination he advised the removal of the right canine tooth. Plaintiff said he didn't care which tooth came out so long as the pain was alleviated. Defendant then proceeded to pull out the tooth. Mr. Langdon said plaintiff felt a wrench, and Mr. Clewes looked on the floor for the tooth, but it had not been removed. A second attempt was made, and the offender was brought out. It was, however, ultimately discovered that there was a large fracture of the jaw, which was followed by serious inflammation and blood-poisoning. Owing to this which, it was alleged, was caused by the negligence of the defendant, the plaintifl was at home ill for several weeks, and lost his situation. Since his recovery plaintiff had been re-engaged at the mill at 18s. a week, whereas in his former position he would have earned 30s. per week. Plaintiff bore out this statement, remarking that at the time of the tooth-drawing he felt "a shock as if his head had opened." He denied that he told the dentist to pull out the eye tooth, and that he had been a drunken man. He first knew about his jaw being broken about five weeks after he had been confined to his bed.

Dr. Gilchrist said plaintiff's illness was entirely due to the state of his mouth and face occasioned by the tooth-drawing. When a tooth was extracted there ought not to be any danger of a jaw being fractured if ordinary care were exercised.

For the defence it was contended by Mr. Russell that there was no negligence. Plaintiff at the time was suffering from an affection of the jawbone originally caused through inflammation. This theory was borne out by the fact that for some time previously to his consulting Mr. Clewes plaintiff had intense pain in his jawbone, and had had several teeth pulled out in consequence. The jawbone was decayed. Defendant told the Court that he had been a dentist for 18 years, and on an average had drawn out 3,000 teeth per year. There was no violence used during the operation of extracting the plaintiff's tooth.

Defendant admitted that he was not a registered dentist, and never called himself such. In answer to Mr. Langdon he said he had studied anatomy a little bit at home. Asked to point out the socket of the right incisor, plaintiff, after looking at the tooth for some time, remarked, "I can't make this chap out."

Mr. Wm. Thorburn, surgeon at the Manchester Royal Infirmary, expressed the opinion that there had been no fracture of the jawbone.

The jury returned a verdict for the plaintiff for £50.

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Commenting on the above case the *Eastern Morning News* says :—The verdict given by a Manchester jury in an action brought by a factory overlooker to recover damages from a Colton dentist for unskilful dentistry is of value as affording protection to the public against the bungling work of amateurs in that particular calling. The defendant was merely a maker of artificial teeth, not a registered dental practitioner, and the contention was that he ought not to have undertaken work requiring knowledge and the skill derived from experience. Inasmuch, however, as the injuries complained of were entirely due to the plaintiff soliciting the amateur to draw the teeth, it is difficult to acquit him of a large measure of responsibility for the consequences. According to the victim, two attempts were made to extract the offending molar, and that each time he fainted under the process. In the end, he "felt a cracking in his brain," and subsequently portions of the jaw bone came away. The medical evidence was strongly divided, one group of doctors affirming that the unskilful removal of the tooth had broken the jaw bone, while others averred that the bone was badly decayed when the plainliff submitted himself to the process. Although it was not so stated, the opinion seemed to be that the pain complained of in the first instance, and which was erroneously assumed to be toothache, was the affection of the jaw, which the plaintiff inferred to be the result of incompetent dentistry. In the face of this conflict of expert testimony, the jury could only determine the point by an act of common-sense, and this they did to the tune of £50 damages. Under the circumstances, the outcome of the case is not unsatisfactory, since it clearly tends to warn unqualified practitioners of the risks they incur. Whether the general public will abate any of its confidence in amateur dentists is, however, not so certain. The Bolton tooth extractor stated in evidence that he drew on an average 3.000 teeth a year, and that he had been in practice for eighteen years, showing, at any rate, that the multitude has not yet learned to discern the value of a diploma. How many of the 3,000 cases were attended by injurious consequences must be left to conjecture.

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## ACTION AGAINST DENTISTS.

Some amusing incidents came to light in the City of London Court, when Mr. Commissioner Kerr heard an action in which Messrs. Gabriel, dentist, 72, Ludgate-hill, sought to recover the sum of £1 11s. 6d., for repairing the false set of teeth belonging to the wife of the defendant, Mr. John Holden, The Villa, Snaith, Yorkshire.

The defendant said he disputed his liability. His wife sent her set of artificial teeth to the plaintiffs without his knowledge, and, in fact, in defiance of his wishes. The plaintiffs had repaired the teeth on two previous occasions, and he had spent 150 per cent. more than the original cost on repairs alone. They did their work in such a flimsy way that he told his wife she was to have nothing more to do with the plaintiffs. In spite of that she sent them.

Mr. Commissioner Kerr—She disobeyed your orders?

The Defendant—During my absence she sent them to be re-soldered and they charged me £1 11s. 6d.

The plaintiffs solicitor informed the Court that the teeth were supplied 13 years since, and that it was six years ago when the previous repairs were executed.

Mr. Commissioner Kerr—You must fight it out with your wife Mr. Holden. You should have taken possession of the teeth yourself. (Laughter). When you have a woman to deal with you must exercise a little authority.

The Defendant—They made out the account to my wife.

Mr. Commissioner Kerr—That will not avail you.

The Defendant—I shall have spent close upon £7 in ten years on my wife's teeth if you make me pay this.

Mr. Commissioner Kerr—In London they often charge you 25 guineas for a set of teeth.

The defendant produced the teeth, and, amidst great laughter, asked the learned judge to look at them, and examine far himself what a very little the plaintiffs had done for their money.

Mr. Commissioner Kerr (severely).—No, sir. I do not want to examine your wife's teeth. I do not want even to see them.

The Defendant—They have broken always in the same place.

Mr. Commissioner Kerr—Then go to a local dentist, who will attend to it.

TheDefendant—But the charge is excessive.

Mr. Commissioner Kerr—I only wish I could get my work of that description done at the price. You have got them cheap. I may have a further opinion; but I will only say you have had them done cheap. The pitcher goes often to the well but gets broken at last. If your wife disobeys you settle that with her. I can't expect her to go all through her life without having to get artificial teeth, like the rest of us. Judgment for the plaintiffs.

The Defendant—It has cost me £2 to come up here to-day.

Mr. Commissioner Kerr—You should not have come.

## WINCHESTER ASSIZES.

### Before Mr. Justice Hawkins.

Charles Henry Snell, 64, dentist, was brought up for judgment. Mr. Bullen prosecuted. At the last assizes the prisoner was found guilty of sending a threatening letter demanding money with menaces from George Roberts, at Southampton, in May last. Mr. Justice Day, however, postponed sentence, and directed the prisoner to be detained in custody, in order that his state of mind might be inquired into. Another indictment against him, arising out of the same facts, for libelling his mother-in-law, also stood over until now. The prison doctor stated that in his opinion the prisoner was of unsound mind and suffering from senile decay. On being asked by the Judge what he had to say about the doctor's evidence, the prisoner broke out into what appeared to be a rambling defence, but which was obviously the result of insane delusions. After considerable discussion, his Lordship directed that the facts and the medical man's report should be at once communicated to the Home Secretary, who would, no doubt, send a medical expert to examine the prisoner, and meanwhile judgment should be further postponed till the end of the assizes.

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# ROYAL COLLEGE OF SURGEONS OF ENGLAND.
## PASS LIST.

The following gentlemen having passed the necessary examinations have been admitted Licentiates in Dental Surgery:—

J. U. Alder, University College, Royal Infirmary and Dental Hospital, Liverpool.
C. Ashby, Charing Cross and the Dental Hospital of London.
G. O. Betts, Guy's Hospital, Dental Department and School.
E. Bevington, University College, Royal Infirmary and Dental Hospital, Liverpool.
F. Billing, Charing Cross and Dental Hospital of London.
S. Bonnalie, Charing Cross and Dental Hospital of London.
S. Bradford, Charing Cross and Dental Hospital of London.
T. W. Bromley, Guy's Hospital, Dental Department and School.
H. A. G. Butler, Guy's Hospital, Dental Department and School.
H. A. E. Canning, Guy's Hospital, Dental Department and School.
J. K. Clark, Guy's Hospital, Dental Department and School.
F. E. Corin, Guy's Hospital, Dental Department and School.
J. M. P. Crombie, M.B. and B.S. Aberd., Guy's Hospital, Dental Department and School.
H. L. Dorrell, Guy's Hospital, Dental Department and School.
E. B. Dowsett, Guy's Hospital, Dental Department and School.
A. Drake, University College, Royal Infirmary, and Dental Hospital, Liverpool.
H. H. Gudgeon, Middlesex Hospital and National Dental Hospital.
A. H. Harris, Middlesex Hospital and National Dental Hospital.
J. W. Hislop, Charing Cross and Dental Hospital of London.
S. J. Holford, Charing Cross and Dental Hospital of London.
H. T. Hulme, London Hospital and the National Dental Hospital.
E. Joseph, Charing Cross and Dental Hospital of London.
A. M. Kempe, Guy's Hospital, Dental Department and School.
A. Kendrew, Guy's Hospital, Dental Department and School.
H. Kenyon-Jeffs, Charing Cross and Dental Hospital of London.

R. H. Manning, St. George's and Dental Hospital of London.

G. Marshall, Guy's Hospital, Dental Department and School.

T. H. Miller, M.B., Ch. B. Vict., Owens College, Royal Infirmary, and Victoria Dental Hospital, Manchester.

N. Miller, Charing Cross and Dental Hospital of London.

R. H. Moore, Charing Cross and Dental Hospital of London, and Meath Hospital, Dublin.

H. J. Morris, Charing Cross and Dental Hospital of London.

J. M. Murphy, Charing Cross and Dental Hospital of London.

E. H. Musgrove, Guy's Hospital, Dental Department and School.

A. H. Parrott, Mason College, Queen's and General, and the Dental Hospital, Birmingham.

A. G. Peck, Charing Cross and Dental Hospital of London.

G. A. Pedley, M.R.C.S.Eng., St. Mary's, National Dental, and Guy's Hospital, Medical Department and School.

J. B. Petley, Charing Cross and the Dental Hospital of London.

C. H. Preston, F.R.C.S.Eng., Owen's College, Royal Infirmary, and Victoria Dental Hospital, Manchester.

S. J. Redpath, Guy's Hospital, Dental Department and School.

J. C, Round, M.R.C.S.Eng., St Thomas and National Dental Hospital.

W. A. Schlesinger, Charing Cross and the Dental Hospital of London.

E. T. Shields, University College, Royal Infirmary, and the Dental Hospital, Liverpool.

V. G. Smith, Guy's Hospital, Dental Department and School.

C. B. Stainer, Guy's Hospital, Dental Department and School.

G. W. Storey, Middlesex and the National Dental Hospital.

B. J. Sumerling, Guy's Hospital, Dental Department, and School.

C. B. Thomas, Middlesex and the National Dental Hospital.

E. Tilley, Middlesex and the National Dental Hospital.

W. J. Trembath, Dental Hospital and School of Ireland, and Royal College of Surgeons, Dublin.

E. E. Turner, Mason College, Queen's and General and the Dental Hospital, Birmingham.

A. William Walker, Guy's Hospital, Dental Department, and School.

A. West Walker, Mason College, Queen's and General and the Dental Hospital, Birmingham.

F. Ward, Guy's Hospital, Dental Department, and School.

M. White, Charing Cross and the Dental Hospital of London.

W. Wilmore, Guy's Hospital, Dental Department, and School.

J. C. Wing, Middlesex and the National Dental Hospital.

C. C. Wood, Mason College, Queen's and General and the Dental Hospital, Birmingham.

Twenty gentlemen were referred back to their professional studies for ix months, and 1 for one year.

## DR. EVANS A DUKE.

It is not yet known how much has been left by the late Dr. Thomas Evans. It has always been understood that he was exceedingly rich, and it is said that among the papers found in the Tuileries on September 4, 1870, was the parchment of a dukedom conferred on Dr. Evans.

## FILLING FRAIL TEETH.

We should remember when dealing with frail teeth, having large cavities, that great masses of gold placed in contact with frail enamel walls must result in disaster from the mere effects of expansion caused by extremes of heat and cold. At one moment we drink ice water, bringing the temperature of the teeth and gold fillings down to thirty, and then we deluge the mouth with scalding hot tea, the result being a rapid and unequal rise of temperature, the gold responding and expanding to a greater degree than the enamel. *Dr. Hill, Items.*

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

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British Journal of Dental Science

No. 720. LONDON, JAN. 15, 1898. Vol. XLI.

# PARTIAL SUPPRESSION OF TEETH IN A VERY HAIRY MONKEY (COLOBUS CAUDATUS).*

By Charles S. Tomes, M.A., F.R.S.

The specimen to which these notes relate is numbered 97, 3, 14, 2, in the British Museum collection at South Kensington, and was placed in my hands for description by Mr. Oldfield Thomas. It consists of the skull and the skin of a male animal, and the abnormality of the teeth is such that the idea was at first suggested that it might be a distinct species, in which the teeth were in a state of reduction comparable to those of Proteles amongst the Carnivora.

A closer study of the teeth, however, and the absolute identity of the skin with those of other specimens negatives this idea, and it appears certain that it is an instance of reduction accidental in the individual, and comparable with similar examples of reduction which are occasionally met with in man (Darwin, "Plants and Animals under Domestcatioin," vol. ii., p. 326; Guilford. "The Teeth and Hair," World's Columbian Dental Congress, Chicago, 1894; Tomes' "Dental Surgery," 4th edition, 1897, p. 64).

These monkeys are remarkable for the great length of the hair all over the body, and especially for the beautiful bushy tail. As has already been mentioned, this specimen shows no abnormality in the quality, length, or disposition of the hair nor of the nails , nevertheless it is especially interesting to the student of odontology to find that this the only recorded case, so far as I know, of great reduction in the teeth of a monkey, should have occurred in a form which, so far as its hair goes, deviates pretty widely from other monkeys; the more so as Proteles also is distinguished by the possession of unusually abundant hair.

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* Read before the Odontological Society of Great Britain.

In the human subject, partial suppression of the teeth has been found not only associated with redundant hair, but also with paucity of hair, whilst Dr. Guilford records the absence of hair and abnormality of finger nails in a mother, daughter and son, who, however, possessed teeth normal in size, form and number. And again, hypertrophy of the teeth has been met with at least in one case of redundant hair (in the case of the hairy woman, Julia Pastrana, whose face was covered with hair), so that all we can say is that abnormality in hair is apt to be accompanied by abnormality in tooth development.

If the skull be compared with those of other males of the same species it is found to be only a trifle smaller in most dimensions, but in the maxilla and the mandible the deficiency in size is far more marked, so that it comes to have a higher facial angle than belongs to the species.

The posterior tuberosity of the upper jaw bears its normal relation to the other cranial bones, so that the shortening lies mostly in front of this point; the mandible is also shorter (73 mm. against 82 mm. in other specimens) and weaker, whilst its width is nearly normal at the back but is diminished in front, and the chin is more vertical. All the facial aspect of the skull, and especially the zygoma, malar bones, canine fossæ, &c., have a porous appearance.

To pass to the teeth themselves, those present (either as teeth or empty sockets)—

$$\text{Right side: i.}\,\frac{0}{0}\ \ \text{c.}\,\frac{1}{1}\ \ \text{pm.}\,\frac{1}{1}\ \ \text{m.}\,\frac{3}{3}$$

$$\text{Left side: } \text{i.}\,\frac{0}{0}\quad \text{c.}\,\frac{1}{1}\quad \text{pm.}\,\frac{2}{2}\quad \text{m.}\,\frac{3}{3}$$

Although all the incisors are absent, the appearance of the alveolus is such as to suggest that they may have been once present, although they must have been very small; the upper canines are large, but the lower canines are mere pegs, and the premolars and molars are all much reduced. Although the teeth are so small they have not in the least the characters of retained milk teeth, but on the contrary present on a stunted scale the characteristics of the permanent teeth.

The upper canines have attained to almost their normal length and width so far as antero-posterior dimensions go, but they are thinned by being much flattened on their inner sides; the left upper canine, perhaps, owing to its being thus thinned, has suffered from wear to the extent of its pulp cavity being opened, and the dentine is stained by blood pigment consequent upon the death of the pulp. It is rather remarkable that these teeth, serving as sexual weapons rather than for the procuring of food, should have attained to a greater development than the other teeth. In the lower jaw the canines are mere pegs (one is lost but its socket remains) and the upper canines were antagonised chiefly by the premolars. In the left upper jaw a small peg-shaped tooth lies close against the canine—this is apparently pm. 3 of the full mammalian detention; then there follows an interval, pm. 4 lying close to and in series with the true molars.

Pm. 4 is lost on the right side, but its socket is there; on the left its crown is much reduced, is cylindrical, and has little indication of cusps; all the upper premolars, apparently, had single roots.

In the mandible pm. 3 is reduced in antero-posterior length, but still is a fairly stout tooth with recognisable characters. Pm. 4 is lost on the right side, on the left it is much reduced as to its crown, which is cylindrical. It had clearly once two roots, but the posterior root has been absorbed and its socket has been filled up with bone, so that after a time this tooth also would have been lost. It is interesting to see this tooth, reduced in functional importance, undergoing absorption like a milk tooth.

Of the true molars m. 1 is the largest of the upper teeth; it has three cusps instead of four, there being but one inner cusp, and it has three roots. On the right side m. 2 and m. 3 are subcylindrical and almost peg-shaped; where on the left side they are lost, the sockets show that their roots must have been almost connate, there being but little indication of division into three roots.

The molar series does not reach as far back as the posterior palatine foramen, and the vacant alveolus is very thin edged; it, however, extends back to the normal extent; and the same condition obtains in the mandible, where there is as much as 19 mm. of vacant alveolus behind the teeth.

In the mandible m. 1 it is the largest (instead of being the smallest) of the molar series. It is ovate and sub-cylindrical, and is so much worn that its cusp pattern is not traceable, though it can have hardly had very pronounced cusps; it has two distinct roots.

M. 2 and m. 3 are smaller, cylindrical, and only indistinctly two-rooted.

Only one of the teeth, viz., m. 1, in the upper jaw can be taken to show any indication of trituberculism in its reduction. It is claimed by the advocates of the tritubercular theory that in reduction teeth show a tendency to revert to an ancient tritubercular type, and the frequent suppression of the posterio-internal cusy in the white races (as pointed out by Topinard, "L'Anthropologie," 1892, and Tomes' "Dental Anatomy," 1894, p. 484) has been held to be a reversion of this kind.

But in this specimen of Colobus, although reduction has taken place in many teeth, it is only in this one that any distinct three-cusped pattern can be seen, so that the specimen does not afford much evidence in support of the theory.

## NOTES ON A CASE OF COMPOSITE ODONTOME.*

By Mr. Russell Barrett.

The case I am going to show this evening is very similar to the other composite odontomes which have been reported; but as it has one or two points of interest, I thought I would bring it before the Society.

The patient, G. E., aged 23, came to the Dental Hospital of London, on Saturday, July 3, when I saw him for the first time, complaining of pain and swelling of the right side of the lower jaw.

"*Previous History.*—Three weeks ago the patient had severe pain in the right side of mandible. He put on poultices to his face and a large swelling arose. He bore this for one week and then went to his doctor, who lanced the gum; this gave him some relief, and he went on, without further advice, until coming to the hospital.

"Has no recollection of any enlargement or swelling of the jaw previous to the three weeks, and has never noticed any undue prominences about the right side of his face. Cannot remember having had any teeth extracted on that side, and does not know any teeth are missing.

"*Present Condition.*—Patient thin, and looks very ill and worn out by pain. Has well marked swelling over angle of right side of mandible and has slight trismus.

"On examining the mouth the second bicuspid and second and third molars are missing. There is great expansion of the jaw behind the first molar, and on the surface, between masses of granulation tissue a rough, gritty substance resembling necrosed bone, can be seen. On probing one can define a portion of the anterior and external borders."

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* Read before the Odontological Society of Great Britain.

I diagnosed the growth as an odontome, and after waiting for a model to be taken I asked Dr. Buxton to give the patient gas, and removed the mass with an elevator. It came away after some difficulty, with a considerable amount of the capsule attached to it.

The cavity was syringed out and packed with iodoform gauze, and the patient was told to come on the following Monday to have it repacked. On July 10—that is, a week after the operation—on taking out the packing the crown of a molar tooth could be seen at the bottom of the cavity.

I have seen the patient lately and the tooth is gradually rising to the surface; it will, I think, ultimately come into place and be of use to him.

The odontome is a rough, nodulated, irregular cube, measuring $\frac{7}{8}$ inch antero-posteriorly, $\frac{3}{4}$ inch from above down, and $\frac{11}{16}$ inch across. Weight, $102\frac{1}{2}$ grs.

On the anterior surface it has a well-marked groove, where it has moulded itself around the root of the first molar, and on its under surface is a deep pit from absorption caused by pressure of the erupting tooth. The capsule, under the microscope, presents nothing but a fibro-cellular appearance. The growth itself is composed principally of hard and osteodentine, along with enamel. The enamel is distributed in a most peculiar manner, as it forms a lining to numerous tubes which permeate the growth.

I have read several books in the hope of finding something with regard to the growth of these tumours, but have only been able to find that they are due to aberrations of the tooth germs, and, in Messrs. Smale & Colyer's book, that during growth they give rise to no painful symptoms.

If this growth is an aberration of the germ of the second molar, it should have commenced to calcify at the fifth year, and have finished calcifying at the seventeenth year. The patient, however, says that neither he nor any of his relations had at any time noticed the swelling and undue prominence of the angle of the jaw; it seems almost incredible that such a disfigurement as was present should have been unnoticed for so long.

I should not like to suggest that the tumour grew in the short time the history extends over, but I think it was more rapid in growth than is usually the case with these odontomes. Three things seem to point to this conclusion, viz.:—

(1) The moulding of the anterior surface around the root of the first molar.

(2) The structure of the growth. The dentine is full of interglobular spaces, and the enamel is darkly stained and unfinished looking.

(3) The enlargement of the angle of the jaw not having been noticed until recently.

Cohnheim's theory, that all tumours are due to developmental faults, seems to me to be well borne out in the growth of odontomes. He supposes that more cells than are necessary for a part are produced, the surplus remaining in an embryonic state until called into activity by some irritation or increased blood supply. A large proportion of tumours also occur where the developmental process is complicated; as where two layers of the blastoderm join in the formation of an organ. All these conditions hold good in the formation of an odontome; and it seems to me more probable that a portion of the "tooth band" should have remained as a "resting spore," and ultimately formed the odontome, than that an ordinary tooth germ should have become so complicated.

British Journal of Dental Science.

LONDON, JANUARY 15, 1898.

# DENTISTS AND BOARDS OF GUARDIANS.

The Kensington and Chelsea School District have a Cottage Home School at Banstead, which, of course. has its Medical Officer appointed under the Local Government Board. Recently, the Managers have decided that the teeth of the children under their care should receive attention, and we hear that the Medical Officer was approached on the subject as to whether he would undertake the work. Whether the officer was incompetent (as he most probably would be) or unwilling, or both, we do not know, but a subsequent advertisement appeared in the public Press inviting applications for the appointment from candidates duly registered under the Dental Acts and holding a license in Dental Surgery from one of the authorities duly authorised to grant such licenses. The salary offered is seventy pounds per annum, and although we do not know if this is adequate remuneration for the work required, we have no doubt that a thoroughly efficient dental Surgeon will now be obtained to the great benefit of the children under the care of the Guardians.

It seems strange that in the face of the recommendations issued by the Local Government Board and published by this Journal a few months ago, that a Metropolitan Board of Guardians should have acted as they did in the first instance. Those recommendations were singularly practical and common sense, the chief point being that the dentist appointed should *be* a dentist, qualified by examination and willing to devote an adequate amount of time and skill for the benefit of those under his care. But the fact remains that in spite of the strides that dentistry has made during recent years and the publicity it now attracts, there are still many "in authority over us" who are sadly in need of education as to what dentistry is and what it is not. We need go no further than the General Medical Council for examples of this. One would naturally consider that the "Medical Parliament" would be composed of men who would take a broad and enlightened view of our profession which is under their care, and do their utmost to assist our legitimate aims and aspirations. Yet even here the absurd notion that dentistry is nothing more than "tooth drawing" finds expression from time to time. Not long ago Sir William Thomson seemed to think that the above description of our specialty was sufficiently correct and comprehensive, and more recently Sir Richard Thorne has been, among others, especially active in doing and saying his utmost to limit the subjects in our curriculum and the scope of the Examination. We wish to aim high for our profession, we wish it to be worthy of ranking with other liberal professions and we wish the L.D.S. diplomas granted by the various Examining bodies of Great Britain to be the premier dental qualifications of the world.

We also hope that before long we shall have a representative in the Medical Parliament. Our medical brethren are 20,000 in number, and have thirty representatives; we are 5,000 and have not one. The reasons why we should have one have often appeared in these pages, and need not be recapitulated. We know of no cogent reason against the admission of a dental representative, and several members of the Council are in favour of it. The possession of public posts, such as those under the Local Government Board, must greatly help in educating public opinion and bringing the claims and utility of our profession more prominently forward, and so we gladly welcome every new appointment. Our future lies in our own hands, and judging from the record of the past twenty years we have every confidence in our future progress.

ORTHOFORM.—This anæsthetic has basic properties, and can be combined with acids, and especially with hydrochloric acid. The base has been used in powder form, and the hydrochlorate in solution. Orthoform has been employed (1) in painful defects occurring in the upper air passages, as in tuberculous ulceration of the larynx ; (2) in operations as a local anæsthetic ; (3) in pain due to gastric ulceration whether simple or malignant ; (4) in urethal pain ; (5) in painful defects in the skin ; (6) in neuralgias as in tables, etc. It has been found, as a result of considerable experience, that orthoform exercises an excellent local anæsthetic action. One application often sufficed to lull pain for hours or even days. The remedy must be applied directly to the nerve endings, as in ulcers, to produce this effect. Thus in painful angina of the throat, the application of orthoform was without effect, as it does not act on an intact mucous membrane. Orthoform acted promptly in stomach affections such as ulcer and carcinoma, but here, also, there must be a breach of surface. The same applies to the urethral mucous membrane. In neuralgias it was without action. In the treatment of affections of the upper air passages orthoform is to be preferred to cocaine in ulceration where a long lasting effect is to be desired. Cocaine is superior to orthoform in case the mucous membrane is intact. It is suggested that orthoform may be of service in the diagnosis of gastric ulceration. It is absolutely without poisonons effect; thus doses of 3 to 4 g. produced no unpleasant symptoms. Locally only a very slight burning sensation, of short duration, was sometimes noted. Apparently sensations of touch, temperature, and taste are not affected by orthoform. Where long contact is necessary to ensure the powder being dissolved, solutions already made are preferable, but the powder is less irritating on the surface of a wound.

METHYLATED SPIRIT DRUNKENNESS.—For some years past intoxication with methylated spirit has been steadily increasing in London, though it does not prevail to any great extent.

An old man was charged at Worship Street Police-court only last week with being drunk and disorderly and assaulting a constable. Methylated spirit was found on him, and the evidence disclosed the fact that the prisoner had frequently been charged before for offences committed while labouring under this form of drunkenness.

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THE PRIVY COUNCIL, THE GENERAL MEDICAL COUNCIL, AND THE DENTISTS.—The following letter appears in the *British Medical Journal* of January 1st. : "The General Medical Council has the administration of the Dentists' Act and the compilation of the *Dentists' Register* under its control ; it has also to deal with matters relating to dental education.

The dental fund formed by the fees paid for registration amounts to £8,148 3s. 11d., and in the year 1896 the Council received for registration the sum of £530 2s. 6d. This fund contributes one-sixth of the working expenses of the office namely, £299 13s. 6d. ; the General Medical Council one-half, namely, £899 0s. 5d. ; and the English Branch Council one-third, or £599 6s. 11d.

The medical profession is represented by 30 members, 20 are chosen by the medical corporations of Great Britain, 5 are nominated by the Crown, with the advice of the Privy Council, 5 are elected by the medical profession as direct representatives.

Meetings of the Council, of its Executive Committee or Education Committee must necessarily be costly proceedings, for the gentlemen who give their time for these purposes must be remunerated, but it is not fair that they should discuss at great length subjects that would at once be vetoed were a dentist a member of the Council. The members of the General Medical Council cannot be expected to be familiar with matters relating to the dentists, and the presence of a skilled person would be of the greatest value to the Council. There are several methods by which this reform can be accomplished :

1. By the Privy Council increasing the number of members of the General Medical Council to 31.
2. By nominating a dentist, who is also upon the *Medical Register*, whenever the next Crown vacancy occurs.
3. By a dentist being elected by the medical profession as a direct representative.
4. By one of the medical corporations nominating a dentist as its representative.

One of the first methods appears to be the most desirable. If the first were adopted he should be elected by the dental profession as a direct representative, and should be on both registers. The second method would be the most simple, and would have the double advantage of not increasing the number of the Council, and also would save the worry, anxiety, and cost of an election."

We consider that as there should be no taxation without representation, we ought to have the privilege of electing our own representative.

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CHLOROFORM FOR THE REMOVAL OF TONSILS.—Dr. Permewan, at a meeting of the Liverpool Medical Institution, read a note in which he said he thought it was inadvisable and dangerous to use chloroform for the removal of tonsils. In the majority of cases it was quite unnecessary to use any anæsthetic whatever ; and in the few cases where an anæsthetic was unavoidable he advised the administration of nitrous oxide. The disadvantages of the use of an anæsthetic were considerable, both to the patient and the operator. These disadvantages were fully considered under the following heads: The risk of general anæsthesia itself ; Blood in the trachea ; the shrinking of the tonsils under an anæsthetic ; Recumbent position not convenient ; the tongue apt to get in the way.

The general sense of the meeting was against the use of chloroform. In fact, the same arguments can be used against its employment for this operation, as for tooth extraction.

OPERATIONS FOR CLEFT PALATE AND HARE-LIP.—At the same meeting, Mr. R. W. Murray brought forward some children on whom he had operated for cleft palate and hare-lip. He urged the importance of closing the cleft palate before the child had learned to talk, and in several cases (shown) where this had been done the children spoke quite naturally.

Mr. Rawdon said that to obtain the best results it was desirable that at whatever age the operation was undertaken, the patient should be well nourished and well grown. He thought no good object was attained by attempting to close a cleft palate under the age of 7 or 8 months, and he knew that the difficulties of operation were much increased.

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PRACTICE AND RESEARCH.—A writer in one of the journals remarks: The regular practitioner of dentistry cannot work for the advance of his profession if it interferes with his daily work. The true investigator of problems finds practice irksome and is ready to burst the bonds which environ him for the more enjoyable fields of the mysterious unknown. The time seems to have arrived when means should be found to set free these imprisoned students and make it possible for them to work independently of the cares of life. When the new organization is perfected it is hoped the possibilities in this direction may be considered and a fund established looking to financial aid to those who are continually sacrificing themselves that the profession may make progress worthy of its high aspirations.''

This may be true, but on the other hand, research must be guided by practical experience. The history of the past clearly shows that those who have done the most for medicine, surgery and dentistry, have been those who have also gained high positions as practitioners. Harvey, Hunter, Sydenham, Abernethy, Tomes and Miller, are cases in point. The fact is that investigators are like poets, born not made.

Liquid Dentifrice.—Take of

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| Quallaia bark in powder ... | 2 ozs. |
| Glycerine ... ... | 2 ,, |
| Rectified Spirit ... ... | 4 ,, |
| Oil of bergamot ... ... | 30 minims. |
| Oil of Wintergreen ... | 20 ,, |
| Oil of Cloves ... ... | 10 ,, |
| Solution of Cochineal ... | q s. |
| Distilled Water to ... | 20 ozs. |

This should be allowed to stand for a fortnight, being shaken up daily and then filtered bright through pumice stone.

Points of Contact in Fillings.—Dr. Morse impresses upon the profession the importance of being more thorough in separating teeth to be filled, no matter what filling material is to be used. Make the point of contact of a shape that would best protect the proximal space from the encroachment of food. Have the fillings rest against each other holding the enamel apart from touching adjoining tooth or fillings. This metallic point of contact acts as a protection to the tooth from decay.

Strong Objections to the use of the Matrix.—Dr. Lowry in a recent discussion remarked : "With a matrix, I claim it is an absolute impossibility to produce a perfectly moisture proof filling margin. Never with a gold filling. It is an invention to save trouble, but not to save teeth. I have never seen a good gold filling put in with a matrix." But how about if the cervical margin is well covered, and the matrix then used to finish ? We consider good fillings can be inserted by this method.

Should Amalgams be Washed ?—In a recent discussion upon this question opinions were much divided. One practitioner thought it depended on the quality of the amalgam. Some amalgams, perhaps, need washing ; with others, there is no necessity for doing it. Another speaker had tested some of the fillings made in each way by putting them in a steel die and crushing them, but was unable to demonstrate any material difference. He did not wash new alloys. Some old alloys are very dirty, and those he washed, but the alloy he had recently used was clean and bright, and made a perfect filling, and he did not wash it. A third speaker thought that he had got better results from washing than where he had not washed the amalgam. His practice was to wash amalgam, especially if it was old. He had been told by one of the men of the S. S. White Dental Manufacturing Company that many practitioners call for an old amalgam. That, according to his mind, was contrary to both theory and practice. If he had a new or a good quality, bright amalgam, one which is not oxidized, he did not wash it; if he is obliged to use one which he considers an inferior grade, he did wash it. To sum up, he believed in having a clean amalgam. If there is a bright surface, the mercury will flow over it [freely so that it takes less to amalgamate the alloy. He believed that the less mercury one has in a filling the better the result.

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PHOSPHOROUS NECROSIS OF THE TEMPORAL BONE.—Dr. Wurdemann relates a case of a man employed in one of the principal match factories in the United States, as a melter of phosphoric composition. Three years ago he had painful left upper jaw, having two teeth extracted, and later had all of them removed, after which he wore a plate. He was kept from work five weeks, felt very well, but after this noticed pain in the ear, and foul muco-pus discharged. The patient lost decidedly in flesh. About this time he was struck on the left side of the head by a match composition which covered the side of his face and filled his ear. His mouth was so sore at times that the plate could not be worn. In May, 1895, a sequestrum from the upper maxilla was removed by a dentist, after which he was little troubled. By a first operation the mastoid cells and antrum were opened, the posterior and superior wall of the canal removed, the bone of the last two places being found necrosed. The mastoid cells were apparently healthy, although the antrum was filled with foul greenish pus. The wound was packed with iodoform gauze, and dressings made every second day. By the operation the mastoid, antrum, the cells, the attic of the tympanum and the external auditory canal were converted into a large cavity. Chronic suppurative disease still continuing, a second operation was deemed advisable. The mastoid was chiselled and drilled open, the external layer being found hard and cancellous, under which there was found a pasty mass of necrosed bone from which exuded greenish fœtid pus. The posterior wall of the canal was soft and friable and readily removed by the spoon. It was found that the superior wall had been largely reproduced, and thereupon the triangular piece of bone between the attic and the tympanum was removed and granulations taken away from the tympanic attic. Since that time the wound has been dressed twice, being apparently free from pus. The patient will be expected to make a good recovery.

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MODELLING WAX.—This is now generally paraffin wax coloured pink with alkanet. It is made into sheets by pouring a thin layer into a suitable vessel, and when set warming the dish, when the layer of wax is readily removable.

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CARELESS EDITING.—We are told that Homer sometimes nods, and we, ourselves, sometimes blaspheme against our Printer, so that we must not be too hard upon the editor of the *Dominion Dental Journal.* But when we see "A Case of *Trigumnal* Neuralgia," as a headline followed in the text by "*Trigumnal* fifth nerve," we think we are only doing a brotherly action in pointing out that the great Trigeminal—which directly or indirectly provides us with a livelihood—should be treated with greater etymological respect, especially by a journal which claims to be "the official organ of Ontario and all other Dental Associations of Canada."

EUCALYPTUS DENTIFRICE.—Powdered orris root, 2 oz.; powdered Castile soap, 2 oz.; prepared chalk, 10 oz.; oil of eucalyptus globulus, 15 m.; oil of peppermint, 3 m.; oil of green mint, 1 m.; oil of cassia, 5 m.; oil of geranium, 5 m.; carmine, 6 grs. Rub the carmine with the powders, first adding a little solution of ammonia, and then rubbing well until quite dry and free from ammoniacal odour. Then add the oils. The addition of a little carbolic acid to above makes a good compound carbolic dentifrice.

A BEQUEST BY M. MAGITOT.—M. Magitot has bequeathed to the Academy of Medicine an annuity of £23 to found a Magitot prize for the best work on stomatology, which is to be given every two years. Also, his personal library. He has thus ignored at his death the dentists of France, whom he would never recognize as colleagues during his lifetime.

WOMEN AS VETERINARY SURGEONS.—In the Court of Session at Edinburgh recently, Lord Kincairney disposed of the action raised by Principal Williams to decide whether women are eligible to be admitted as Members of the Royal College of Veterinary Surgeons if they have complied with all the regulations relative to the professional examinations of that College, that the defenders are not entitled or bound to exclude any such student from examination merely on the ground of her sex. Lord Kincairney dismissed the action on the ground that the Scotch Court had no jurisdiction, the domicile of the Royal College of Veterinary Surgeons being in England. Lord Kincairney said he did so with some little regret, because, when the action had been brought it might have been decided there as well as in London. At the same time he confessed he did not see the necessity or expediency of bringing the case in the Scottish Court. As he had, in his opinion, no jurisdiction, it would not be fitting that he should express any opinion about the pursuer's title, still less about the interesting question on the merits. We suppose the case will be thrashed out on this side of the Border.

A DENTAL ACT FOR NEW SOUTH WALES.—The Premier has intimated to Dr. Graham, M.P., that he may be able to afford time, usually devoted to Government business, for the purpose of putting through the Dentists' Bill this session, if it is not likely to meet with opposition. Both this and a Medical Bill have been passed by the Legislative Council, and are now before the Assembly in the name of Dr. Graham. We hope the framers of these Bills have profited by our experiences and are making the Acts thorough.

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AN ARTIFICIAL TOOTH IN THE LARYNX.—Mr. Troutbeck held an inquest with reference to the death of Louisa Smith, age 46, a linen-keeper at an hotel. Jane Costerman, of Newton Street, Aldgate, stated that the deceased, who was a friend of hers, had a fit on Tuesday evening, so she went with her to King's College Hospital. After being attended for about an hour she was discharged as all right. They then met a friend and went into a public-house in Clare-market, where, just as she was having a drink, she fell back and died in a few moments. Dr. Thomas Hudson Gardiner, house-surgeon at King's College Hospital, said he treated the deceased for an epileptic fit, which she had every symptom of having had. When she was brought back at about eight o'clock he discovered a plate of false teeth in her mouth, and one of these teeth had become dislodged, got fixed in the larynx, and choked her. The Coroner: It is very dangerous for an epileptic subject to wear false teeth, surely? The Witness: Yes, it is. The jury returned a verdict of "Accidental death."

The patient had evidently, while suffering from the fit, clenched her teeth and forced a tooth off her plate. This becoming impacted in the larynx caused death. Many epileptics know when a fit is coming on, and should be warned by their dentist to remove any artificial teeth in time.

Dentists' Scale of Charges.—It is news to us that there is an official scale of charges for dental work, our idea was that each man is a law unto himself, but from the following paragraph from the *Northern Daily Telegraph* it would seem otherwise :—" It may not be generally known that the Dental Association has a scale of charges varying (like the charges of medical men) in accordance with the social position of the patient. The information was conveyed during the hearing of a case in the Leeds County Court yesterday. A man upon whom a claim was made for £4 on account of treatment of his wife's teeth urged that the bill had been incurred before he married her; that she was then a domestic servant; and that the charges were in excess of the Dental Association's scale for domestic servants. For some reason the extraction or insertion of teeth is usually regarded, in the law courts, in a humorous aspect, like breach of promise of marriage. In this instance the judge seemed to think that dentists' charges were a sort of irresponsible quantity; remarking that he himself had had a tooth out at a shilling and at a guinea. As he gave judgment for the full amount of the bill, the moral would seem to be that customers, notwithstanding the Dental Association, must either make a clear bargain beforehand, or pay what is charged."

We live and learn.

Poisoning by Cocaine Cataphoresis.—Dr. Moore, of Frankfort, has recorded a case of symptoms of poisoning which he affirms was caused by the application of cocain to the dental pulp by means of the electric current. After thorough investigation to discover the cause of the accident, he is convinced that the apical foramen was very patent, so that the cocain rapidly entered the system.

A Bad Dentifrice.—A lay contemporary advises a dentifrice containing cream of tartar and alum. As both these substances contain free acid, they should never be employed for such a purpose.

Work and Sleep.—Dr. James Legge, Professor of Chinese in the University of Oxford, who has just died at the age of 82, was, it is said, in the habit of rising at 3 a.m., and allowed himself only five hours of sleep. Brunel, the famous engineer, for a considerable part of his life, worked nearly twenty hours a day ; friends and assistants have left it on record that he hardly ever went to bed, and yet never seemed tired or out of spirits. After working through great part of the night, he slept in his armchair for two or three hours, and at early dawn he was ready for the work of the day. Sir George A. Elliott. afterwards Lord Heathfield, who was in command throughout the great seige of Gibraltar, which lasted four years, never during all that time slept more than four hours out of the twenty-four. He lived to the age of 84. In a recent number of *Cosmopolis* Professor Max Muller records a conversation which he had with Alexander von Humboldt on the subject of sleep. "As I get old," said Humboldt, "I want more sleep—four hours at least. When I was young, two hours of sleep were quite enough for me." On Professor Max Muller hinting that he found this a hard saying, Humboldt said, "It is quite a mistake, though it is very widely spread, that we want seven or eight hours of sleep. When I was your age, I simply lay down on the sofa, turned down my lamp, and after two hours sleep I was as fresh as ever." He lived to be 89.

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Amount of Gold Used.—In answer to a query, I received the statement from Morgan, Hastings & Co., that annually there are used in the United States 30,000 ounces of gold for filling teeth, which is a very conservative estimate.—*F. J. Fesler, Dental Digest.*

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Over Treatment.—I do believe one of the mistakes that have been made in the past has been too much treatment of root canals, and I am becoming more and more satisfied daily that the profession at large are feeling that it is not necessary to treat root canals as much as they used to.—*C. L. Clifford, Review.*

# Abstracts of British & Foreign Journals.

## EXTRACTS FROM THE PAPERS CONCERNING THE LATE DR. EVANS OF PARIS.

The *Daily News* correspondent says—

I learn with regret of the sudden death of Dr. Thomas Evans, the most famous dentist, perhaps, that ever lived. Dr. Evans came to Paris in 1848 to act as assistant of Dr. Brewster, who was then teaching Europe the superiority of American dentistry. The new comer was a handsome little man, extremely shrewd, and had the quiet, bland manners of a Philadelphian Quaker. After the Presidential election he won the good graces of Louis Napoleon, whose teeth required skilful treatment, and who confided to him a number of delicate commissions of a rather political nature. They were discharged with discretion. When the Empire was established, Evans was attached to the Imperial Household, and may be said to have held the Emperor's ear during eighteen years. When it was seen in what favour he was, he was appointed surgeon-dentist to the Courts of Russia, Prussia, the Hague, Belgium and Baden. I was told by a Countess Tolstoi, who was lady in attendance on the wife of Alexander II., that he was never really the operating dentist at the Court of St. Petersburg. The person who attended to Imperial teeth there was a Dr. Murphy. Evans' true function was to discharge diplomatic duties. The Emperor of the French never trusted his Foreign Minister or his Ambassadors. He was tormented with the idea of the Foreign Office being Orleanist, and was constantly negociating behind the backs of his regular agents. Whenever he had a confidential message to deliver, to transmit to a Sovereign or his Foreign Minister, he apprised one or the other of the fact. The intimation was given according to a code agreed upon. Evans then received a message that the Sovereign in question wished to consult him about his teeth. He started immediately he had seen the Emperor and received his lesson, which he might or might not understand, and came back (if from Russia) laden with furs, snuff-boxes, diamond rings, pins, Tartar inlaid canes, photographs of Imperial personages in costly frames, and brevets of promotion in the Orders he belonged to. He was a Russian Baron, for so the Czar willed, but never took the title except at the Winter Palace. He, however, often wore his Russian uniform at the Tuileries. It denoted his rank in the household of Alexander II.

Dr. Evans, being of Quaker origin, was a man of peace, and most sincerely did he work through the Empress Augusta (when she was Queen of Prussia only) to prevent the blood and iron policy taking effect in a war with France. He always said the great promoter of that policy was not Bismarck, but the Crown Prince. Geffken more than corroborated that view after Frederick's death. Dr. Evans went in for ambulance work in 1866, and subsequently, both in Germany and France. In doing so he obtained very full information for the Emperor Napoleon of the relative strength of the German and French army. He warned the Emperor on no account to let himself be dragged into a war until his whole army was armed with chassepots. Dr. Evans was the only man about Court who stood by the Empress Eugénie on the 4th of September. He saw her himself to Trouville, whither he took her dressed in Mrs. Evans's clothes and in his own carriage. He befriended her in many ways when she was a refugee. A sad service he rendered was to remove all doubts as to the Prince Imperial's body. Dr. Evans had stopped some back teeth of that ill-starred youth before he went to Zululand. He could not have recognised the altered face, but he was sure about the teeth. Dr. Evans's house was the resort of the eminent and interesting Americans who came to Paris.

The Doctor lived in a very handsome house which he built for himself in the Avenue du Bois de Boulogne. Dr. Evans's real estate in and around Paris was valued at £1,500,000. He had a large estate also in New York, and, I believe, invested extensively in other American cities. He did not make all this fortune by professional work. Far from it. He owed it to tips given by the Empress Eugénie. When Haussmann was planning how to pull down and rebuild Paris, the Empress showed Evans confidentially a map of the future capital. She said, "If you have money saved, follow my lead," and then showed him on another map where she had already invested. She had made large investments at Chaillot, and near the Trocadero. There was ground to be had west of the Avenue de St. Cloud for three or four francs a yard that would be worth as many hundred francs in a few years. It is now the site of the Avenue du Bois de Boulogne. Evans bought plot after plot of ground, and in a few years his fortune was made. It tried him latterly to be called abroad to attend to the teeth of crowned heads. The Empress Frederick took no excuse from him. He was in frequent attendance on the Emperor Frederick from the time the cancerous malady showed itself, and had opinions of his own on the much debated subject of its treatment. Dr. Evans lost Mrs. Evans, the companion of his whole life, last summer. Her eldest sister was married to his eldest brother. She and the Doctor went to school together, and they married when she was seventeen and he twenty. She was an amiable and excellent woman. Long before her death she suffered from a chronic disease. The Doctor was her devoted nurse. Her death was a severe blow to him, and deprived him of daily tasks into which he threw his whole heart. They had no child.

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The *Daily Telegraph*, in a leader on Dr. Evans, says—

Ordinary members of the useful vocation of Thomas Evans may feel some pang of admiring envy when they learn that the Parisian practitioner was dentist to the late Napoleon III., who made him a Commander of the Legion of Honour, and that he was familiar with the teeth of most of the crowned heads of Europe, several of whom he had attended since childhood. He was in possession of an extraordinary number of Continental Orders. In a measure he was instrumental in saving the life of the Empress Eugenie when she fled from Paris after the catastrophe of Sedan, and he accompanied her on Sir John Burgoyne's yacht across the Channel. Dr. Evans is supposed to have acquired great wealth in real estate transactions during the Second Empire. Recently it was reported that he intended to endow various benevolent institutions, and that a portion of his ample means would be devoted to founding a dental university in America, of which country he was a native. He established the Lafayette Home in the Rue de la Pompe for American girls who study in Paris. He was also the proprietor of the "American Register," an organ published in Paris for the benefit of Americans. Altogether, a very eminent and memorable "tooth-drawer"—albeit, as a matter of fact, neither he himself, nor the equally skilful son who has succeeded him, would ever personally extract an incisor or a molar. Some surgeon lower in the hierarchy of that dread chamber of horrors of which the dentist's chair is the melancholy throne had to perform that part of the business. Dr. Evans came in majestically at the later stage, dexterously repairing the ravages of time and indigestion, and giving comfort and comeliness back again to many an august jaw, which, but for the magic of modern dentistry, would have been prematurely "chop-fallen." Dr. Thomas Evans must not "go crownless to Persephone." Apart from the alleviations and ameliorations which he must have afforded by his skill to many and many a private individual, he has assuaged the torture of emperors, kings, and princes; and who knows what modifications of history, what happy changes of policy, what secret amendments in current events and the tempers and decisions of rulers the great dentist of the Bois de Boulogne may have occultly written down to his account, and not that of diplomatists or statesmen?

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The Paris correspondent of the same organ also writes—

I regret to have to announce the death of Dr. Thomas W. Evans, the well-known dentist. Feeling slightly unwell, he went to bed at nine o'clock, and an hour later he expired suddenly of heart disease. He may be said to have died in harness, for he was practising in the Rue de la Paix till late on Saturday afternoon, and made several appointments for the morning. Although very wealthy, he thus continued the practice of his profession till the very last. It is only a month since Dr. Evans returned from the United States, where he went soon after the death of his wife last July. There can be little doubt that the loss of his life-long companion preyed upon his mind. It will be remembered that Dr. Evans was instrumental in aiding the escape of the Empress of the French from the Tuileries in September, 1870, and it was in his house in the Avenue du Bois de Boulogne that she passed her last night in Paris before starting for the coast whence she reached England. The doctor was on extraordinary terms of intimacy with all the crowned heads of Europe, and the decorations he received were so numerous that they completely filled a cabinet which stood in his drawing-room. The stars placed next to each other, would have made a line 13 feet in length, as he was fond of telling his visitors. A week ago the doctor returned from a visit to the Grand Duke of Baden, and I remember on one occasion seeing the Queen of England send for the doctor, whom her Majesty espied at a garden party at Marlborough House, and keep him in conversation for several minutes while those around looked as though they wondered who the little shabbily-dressed man could be. Doctor Evans was very philanthropic. He organised an ambulance during the war, and much of his time of late years was devoted to the organisation and management of a home for young American and English girls studying art and music in Paris. Several ladies who are now stars could testify to the benefits they have received during their early years in Paris from the kind-hearted doctor and his amiable wife.

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*Truth* also has a leader on the departed dentist :—

Dr. Evans had American business shrewdness, and the American passion and ability for money-making. When, in days of yore, I first knew him, I did not believe a tenth of what he said about his high international influence. It seemed to me the suggestions of vanity, for he was subject to this weakness. But he made no empty boast. The August, Princely, Grand-Ducal, and other Highnesses received and spoke to him exactly as he said. He gave them benevolent advice, which they were glad to have. Decorations, all the years I knew him, kept raining down on him. His importance as a secret diplomat ceased with the fall of the Empire. But his situation as a dentist and a man of enormous fortune remainen unshaken. He also remained a favourite of the different potentates to whon he used to take messages from Napoleon III. The Empress Augusta was faithful to him to the end. Her daughter, the Grand Duchess of Baden, wrote heart-broken letters to Mrs. Evans. They were about the bad health of her children. She had no healthy child, and envied the poor women whom she saw surrounded by chubby-rosy-faced urchins.

Dr. Evans was more than a friend of the late Emperor Frederick and his wife. But he was annoyed at the confidence they placed in Sir Morell Mackenzie, about whose treatment he had strong views. Evans's opinion greatly influenced the opinion of the old Emperor and Empress, of Bismarck, and of the Berlin physicians about the throat doctor from London. Evans was originally a Quaker. The theatrical and Society tastes of Sir Morell Mackenzie were repugnant to him. His feeling about them made him scrutinize keenly the man and his treatment. But the Crown Princess had a strong bias, and followed it. Dr. Evans was given impressions of all the photos taken of Frederick during his illness. He generally wrote on a slate. Dr. Evans asked him to write on black card or tablets the size of a slate, when he had occasion to communicate with him. "Why?" asked the Prince. "I want to have them as a precious relic for my wife." The request was complied with. Dr. Evans, while speaking quite candidly of his weakness, called him a lump of goodness.

The late Doctor had the prudence of the courtier. He only talked about his Kings and Queens to old and tried friends. This curious character was on a small pattern. He had no big defects; nor had he any shining virtues. But he had many estimable qualities, good for every-day use. He was a safe man, take him what way you might, was a hard-working man, though so opulent, and was always unaffected. The Quaker education stood him in good stead in keeping his head level and his manners civil and obliging. He almost quarrelled with the Emperor for declaring war in 1870. In 1867 or 1868 I heard him make disparaging remarks of the Princess Metterich in her hearing and in that of the Empress. Count von Goltz. then suffering from a cancer in the mouth, was also within earshot. He sidled up to Dr. Evans and quietly took his hand, squeezed it, and passed on. I asked the Doctor what the Princess had done to cause his displeasure. He said that she and the Archduke Albert and Comte Surrurier were trying to draw France into a war with Prussia. "And what if they succeed?" I asked. "They will ruin France, and I have too great interests in Paris not to put a spoke in their wheel." Such being Evans' sentiments, it was highly honourable to have stood by the Empress as he did on the Fourth of September and the following days. She took refuge at his house in a dressing-gown. He lent her clothes of his wife's, and took her himself to Trouville, going part of the way in his carriage. At Lisieux there was serious danger, as she was recognised; but Dr. Evans was able to get her through quietly. The Government did not ask better than to let her go, but the populace was everywhere hostile. Nobody had reckoned, unless the Emperor and Evans, on defeat. It brought, therefore, an infuriating sensation. Eugenie was known to be with the Duc de Gramont, in forcing on a declaration of war. Dr. Evans ran great risks in taking her to Trouville. He would have run greater had he gone with her to Boulogne or Calais.

Evans wrote no souvenirs, and was incapable of any literary effort. He told me so the last time I saw him. He had, however, a mania for employing cheap writers to do authorship for which he was credited—or the contrary.

He could not be called stingy, for he lived well and handsomely. But he was "near." He ran a newspaper on the most economic lines, but he never ventured to give it a word of news about his august and princely clients. The Doctor was a most attentive husband, and was his wife's devoted nurse in her last long illness. This did not prevent him being the victim of a curious Court intrigue. Its object was to rid the Empress of a rival—a beautiful Florentine—by persuading Evans she was in love with him. As she was deeply in debt, she lent herself to the plan. She went to have her teeth attended to with a coronet on her head, and her hair, like Lady Godiva, forming a glorious mantle. The robe was statuesque and *légèrement attachée.* Evans himself informed me of her debts, and that he had paid them, and secured quiet for her by installing her in a villa at Passy. But the interesting information was so given that I might infer benevolence merely or chivalrous feeling. He had often benevolent impulse ; but it chilled generally before there was time to fill a cheque. The villa was not far from where he lived. Mrs. Evans found out who was the tenant, and why. She thought herself aggrieved, and was not a Griselidis. The Emperor dropped the lady ; the Doctor was alluded to in the pulpit by an outspoken American preacher. American opinion went against him, and the lady was sent back to Florence with twins, called Napoleon and Napoliana. Their names put a stop to all ill natured talk. The payment of the debts was set down to courtier-like feeling. I never believed anything else.

Dr. Evans had no documents of any historical value. The autographs he could show merely established on what footing he stood. He constantly took messages from the Courts of the Tuileries to those of St. Petersburg, Berlin, and the Hague. The late Queen of the Netherlands sometimes visited and lunched *sans cérêmonie* at his house, where I saw her not long before her death, very dropsical and wearing her everlasting crimson dress. She gave Doctor and Mrs. Evans in the fifties a cabinet portrait of herself in oils. It represented her with clustering ringlets and a round but mind-lighted and most pleasing face. A letter kept in a small case behind the portrait was gracefully turned and delicately complimentary. It was in English and signed "Sophie." The Queen understood what use Dr. Evans could be in various negotiations then pending. The sale of Luxemburg was one She also wanted to help him in a counterplot against a proposed match between the Prince of Orange and the Princess Anna Murat. But not a word of all this was ever set down in writing. Often, I imagine, Dr. Evans did not know the purport of messages he took abroad from the Tuileries. They were always verbal, and so were the answers —at least those sent through him.

Dr. Evans left endless wealth, but I am at a loss to think who comes into it. He had two brothers. One was the father of his nephews, Louis and John, who helped him in his dental business. Louis died ages ago. John displeased his uncle in marrying, though he married a respectable American young lady. He displeased him more by assuming, under a Papal brevet, the title of Marquis d'Oyley There was a bitter quarrel. The uncle used his influence in trying—but vainly—to get the nephew expelled from France. He went to law to prevent him selling a certain tooth powder and tooth wash, but again failed. I know he felt bitterly against the Marquis d'Opley. The other brother, Dr. Theodore Evans, was married to the most lady-like American in Paris. She had a large fortune, and he made another.

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The *Yorkshire Post* says :—

A romantic professional career was ended by the death, announced yesterday, of Dr. Thomas Evans, the American dentist domiciled in Paris. He had amassed a fortune which is computed at two millions sterling, not by the practice of dentistry alone, but by his usefulness, as a sort of informal diplomat. This employment was given him first of all by Louis Napoleon, who had the misfortune to think all his recognised agents more or less treacherous. He went in the Emperor's time to St. Petersburg, ostensibly to take care of Imperial and noble teeth, but really to keep in touch with Russian opinion in high quarters, and sometimes to deliver to Alexander II. messages of peculiar importance. A diplomat whose *role* was so indefinite could only be laden with presents and decorations. Napoleon's use of him, and the assistance he gave to the Empress Eugenie in her flight to this country, had given him the vogue of all the Courts of Europe; for it was evident that the little American Quaker was a man to be depended on. It is exhilarating to think what use the elder Dumas would have made of such a character.

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## THE UNIVERSITY OF WESTMINSTER.

It would be rash to forecast the course of the next session of Parliament, but the Government is pledged to political measures which are almost certain to prove to be of a highly contentious character. Under such circumstances there must be a risk that the University of London Bill will again be pushed into a corner and disappear below the political horizon.

In view of all the circumstances it has appeared desirable to some of those who have taken an active part in the task of creating a teaching university in London to be prepared with an alternative plan, and such a scheme has been drafted. It proposes to form a teaching university in London by the federation of teaching institutions of university rank in London. The basis of the proposed university would be Faculties. Thus the Royal College of Physicians and Surgeons, the Society of Apothecaries, University and King's Colleges (in respect of their faculties of medicine), and all the medical schools in London would be invited to organise themselves into a Faculty of Medicine: University and King's Colleges, the Royal College of Science, the City and Guilds of London Institute, and the Bedford College for Women, and their professors would be invited to organise themselves as the two Faculties of Arts and Science; King's College (in respect of its faculty of theology), and certain theological colleges, as a Faculty of Theology; the Inns of Court and the Incorporated Law Society, with the professors of Law in University and King's Colleges as the Faculty of Law; the Royal Academy of Music, the Royal College of Music, the Guildhall School of Music, and Trinity College, London, and their professors as a Faculty of Music. Eventually the graduates in each Faculty would be included in the organisation of that Faculty, and the business of each Faculty would be conducted by a Council of the Faculty. The supreme governing body of the university, it is suggested should be a senate consisting of a Chancellor, a Vice-Chancellor, and Treasurer, to be nominated on the first occasion by the Crown, but subsequently by the Senate, of the Presidents of the Faculties, and of two other persons to be nominated by each faculty, and of six persons to be nominated by the Crown.

It is proposed to assign very important functions to the Councils of the Faculties, for the conditions for admissions to degrees in the Faculty would be determined by its council; it would hold examinations for degrees, and would nominate examiners. It would further receive examination fees and pay the examiners. It is proposed that a special Board of Matriculation should be appointed, mainly by the Faculties of Arts and Science, but including representatives of the other Faculties, to control matriculation, and to determine the nature of the university Matriculation Examination, the acceptance of evidence of proficiency in lieu of it, and the appointment of examiners for it. The decisions both of the Councils of the Faculties and of the Board of Matriculation would be subject to the approval of the Senate.

The special feature of the scheme is the great freedom both in respect to present organisation and future development, which would be left to the Faculties. It is also maintained that the institutions included are more fully identified with the Faculties into which they enter and with the university than in other schemes which have been proposed, while at the same time difficult questions touching proportional representation of Faculties on governing bodies are in the main avoided.

It is proposed to avoid any possible confusion as to the source of the degrees to be granted by the new university, and any encroachment by the new university upon the established reputation of the University of London by calling the new university "The University of Westminster," a name which it is urged recalls associations which render it especially appropriate for a university, but do not attach to any other title hitherto suggested, nor to any other district of London. It is thought that a university constituted on the basis indicated would be more successful in attracting endowments for the higher forms of teaching and for original research, a part of the duties of a university in which the existing University of London has conspicuously failed. The scheme is a federal scheme, and its promoters make it one of their chief objects to give to the teachers a preponderating influence in determining the conditions of examination for degrees. Only students of constituent colleges would be admitted to the examinations for the degrees of the university, and it is believed that a healthy feeling of *esprit de corps* would, with the lapse of time and with the growth of the University of Westminster, spring up in the minds of London students.

The proposals embodied in this scheme have, we understand, already secured the support of representative members of the teaching staffs of King's College, St. George's Hospital, St. Bartholomew's Hospital, St. Mary's Hospital, the Middlesex Hospital, St. Thomas's Hospital, Charing Cross Hospital, Guy's Hospital, and University College.

*British Medical Journal.*

## CANCER CAUSED BY AN ILL-FITTING PLATE.

By Dr. J. P. Wilson, Iowa.

Mrs. P., age sixty-eight, of previous good health, and with excellent family history.

I was called in consultation with attending physicians. The case had been under treatment for more than a year. Morbid growths had been repeatedly removed of late, from the nose. The cheek was considerably enlarged. A gold plate had been worn for two years, the rim of which was buried in the aggravated buccal tissues, making a cut nearly two inches in length, and a quarter of an inch in depth.

These symptoms led me to believe the antrum to be the seat of the disease.

At the request of the physicians, I opened into that cavity through the cut made in the soft tissues by the plate.

The posterior and superior portions of the sinus were found to be well filled with a spongy growth that bled freely on the slightest touch. There was no difficulty in irrigating the unoccupied portion of the cavity, the water passing freely into and out of the nose.

The plate was now, for the first time, laid aside.

Believing the disease to be of a malignant character, I advised the lady to go at once to a Chicago hospital for treatment at the hands of a skilful surgeon. But she and her friends as well as the physicians who had attended her, suggested that we wait for a time for further development. I accordingly visited her home daily for three weeks, each time cleansing the passage from the antrum to the nose with medicated washes, which afforded considerable comfort at the time. I discovered, however, that the disease was rapidly gaining ground. Polypoid growths were continually forming in the nose, which her physician from time to time removed.

An angry appearing tumour of a cauliflower form, commenced bulging through the opening into the mouth. The cervical glands became involved.

After carefully studying the case in the light of our best authorities, I pronounced the disease to be of a carcinomatous nature, and to verify my conclusions I sent a clipping from the growth to a Chicago microscopist, requesting a prompt reply, which came by wire in the following words: "Carcinoma—Prognosis grave."

I advised the friends of the unfortunate woman to take her at once to Chicago, which they did.

Prof. Senn was consulted, and confirmed the diagnosis given. An operation was determined upon as the only possible hope of lengthening her life. An enlarged cervical gland was first removed, followed by excision of the left superior maxillary.

The patient rallied from the operation and appeared to be doing well for a few days, when facial erysipelas set in and death soon followed. Prof. Senn, I am informed, regarded the case of traumatic origin. Her brother, Dr. Smith, a prominent physician of Wellington, Ohio, who attended the operation, informed me by letter received since writing the above, that his sister "had no heredity inviting the conditions and cause of her death."

The question of peculiar interest to us as dentists, is the cause of the malady. Was it the result of long and continued irritation, resulting from an ill-fitting plate? I am inclined to that opinion.

*Dental Review.*

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The chairman of the Warwick Board of Guardians recently announced that he had received a letter from the Countess of Warwick, who had been asked by a firm of dentists to distribute ten sets of artificial teeth among the poor of Warwick. The letter was referred to the Relief Committee to deal with.

# A CASE OF ANKYLOSIS OF ALL THE JOINTS.

By Mr. C. A. Morton.

There is so much confusion between the terms chronic rheumatism, rheumatic arthritis, and rheumatoid arthritis that it would not perhaps be profitable to discuss at length the nature of the joint lesions, but taking the definite disease which is perhaps most clearly distinguished by the term osteo-arthritis we may inquire whether it was of this nature. The deformity, the coarse grating in the joints, the osteophytic outgrowth, and the glossy skin all point to the disease being a form of osteo-arthritis. On the other hand, true ankylosis, that is, ankylosis which is not merely the result of locking of osteophytic outgrowths, is rare in osteo-arthritis. In this case the fixation of the joints was clearly not due to osteophytic outgrowths, for they were only present around a few joints and were absent in many which were absolutely fixed. I cannot find the record of any case of ankylosis of the temporo-maxillary joints in osteo-arthritis, though they have become ankylosed from traumatism and suppurative arthritis in several cases. The first time the condyle was excised was for osteo-arthritis. There was no ankylosis, but great enlargement of the condyle, producing marked deformity of the jaw. This was Professor Humphry's case, and was published in the *Medical Association Journal* in 1856. In another case (one of Mr. Heath's) there was also enlargement of the condyle, and a bony mass united it to the malar bone. In one recorded case of ankylosis of the joint, to which reference will be again made, the patient had had rheumatic fever and suffered from recurrent sub-acute attacks.

In my own case there was no evidence of enlargement of the condyles, but there was complete fixation of the joint, so that the jaws could not be opened. It was, of course, impossible to tell whether the ankylosis affected one or both joints. To remedy such a condition either the adhesion in the joint must be broken down, or the joint excised, or a new joint formed. It was impossible in this case to lever open the jaws, as the teeth could not be separated at all, and hence no wedge or screw-gag could be introduced; and, moreover, Mr. Paul Swain has shown, from the collected records of cases, that all such attempts fail. A new joint has usually been formed by removal of a wedge of bone just in front of the angle of the jaw—Esmarch's operation. The respective advantages and disadvantages of the two operations I will consider presently. I decided on excision of the condyle or condyles, and the operation I am about to describe was performed in exactly the same way on both sides, as the ankylosis was found to be bilateral. It was done an October 27, 1896. An incision was made about one inch in length parallel with, and a quarter of an inch below, the lower border ot the zygoma, commencing just in front of the ear and extending forwards, therefore beginning over the temporal artery, but not deep enough at that spot to wound it. A portion of the parotid gland, superficial fascia, and fat were divided, and several small vessels were tied. The masseter was then exposed and was divided, and I came down on the zygoma, with the neck of the jaw fixed to it as if it were one bone. There was no sign of any joint, nor could any movement be made out on attempting to open the jaw. I then inserted a curved narrow copper spatula under the neck from behind, so as to separate it from the internal maxillary and other vessels, and divided the neck with an Adam's saw and a few chisel cuts. When I found the joint was completely obliterated I gave up the idea of excising the condyle. I saw no branches of the facial nerve on the right side ; on the left, when retracting the fascia over the masseter, the orbicularis palpebrarum and oris both twitched. When separating the divided portions of the neck on the left side with a periosteal elevator some rather free bleeding occurred from a vessel behind the neck—probably a torn venous branch—and I had to leave a pair of pressure forceps on, as it was impossible to tie it. These were removed next day, and the wounds healed without suppuration. After divisions of both necks I was able to lever the jaw open, so that there was a space of a quarter of an inch between the teeth, and a few days after the operation he could open it one-eighth of an inch more and could eat all kinds of solid food. Nearly a month after the operation I opened the jaw with a screw gag under chloroform so that there was nearly an inch space between the teeth. I heard in February of this year that he was still able to eat solid food easily. There was a little paresis of the left orbicularis palpebrarum after the operation, but with the application of the faradaic current this soon passed off.

After excision of the condyle or division of the neck of th jaw the difficulty of forcing open the jaw lies in the contracted condition of the muscles, especially the temporal muscle. After dividing the neck on both sides in this case I found the movement at the point of section free, but the contracted temporal and masseter muscles kept the jaws from separating to any extent, and I had to gradually lever them open in order to obtain a satisfactory result, a process which was repeated some weeks after the operation. I believe that it is best to make only a horizontal incision below the zygoma, and not a vertical one at all, as division of branches of the facial nerve is more likely to occur in the latter, however short, and I believe it would not give a distinctly greater access to the joint than a fairly long horizontal incision.

The respective advantages and disadvantages of excision of the condyle and Esmarch's operation of removal of a wedge-shaped piece of bone from just in front of the angle of the jaw remain to be considered. It seems to me that if we can liberate the joint so that it will not again become fixed it would be much better to do so than to perform Esmarch's operation. After a double Esmarch's operation the body would be quite cut off from the ascending rami, so that the masseters, temporals, and pterygoids could not act on the movable portion, and the ability to close the jaw would be lost ; nor could any antero-posterior or lateral masticatory movements be performed. It seems possible that in time the buccinator might partially take on the action of the masseter and be able partly to close the jaw. That the power of closure does return is shown by the records of cases in which the operation has been performed, but it does not become possible for lateral masticatory movements to be carried on. If the wedge in Esmarch's operation is taken out so far back as to include the angle, as has been done in a few cases, then the attachment of the masseter would not necessarily be wholly separated from the movable portion, and closure could be feebly effected by the portion left attached. On the other hand, some surgeons have brought forward this very severance of the movable portion of the jaw from the masseter and other muscles which closed the jaw as a great advantage of Esmarch's operation, for it, of course, tends to prevent the divided portions of jaw being forcibly drawn together and so reunited. The most serious objection to operation on the joint is the unfortunate tendency there is for it to become again fixed after operation ; and no doubt the temporo-maxillary joint is in a somewhat dangerous locality for operative interference, with the internal maxillary artery so close to it beneath and the branches of the facial nerve lying over it in the way of the necessary incision. Temporary paralysis of some of the branches of the nerve is not uncommon after the operation, and in one case the external carotid artery was wounded. The facial artery might be wounded in Esmarch's operation, but could probably be pushed out of the way, or if divided could be easily secured, whereas the internal maxillary artery if wounded might be very difficult to secure, as it lies behind the junction of the neck and ascending ramus. The inferior dental artery is divided in Esmarch's operation, but does not bleed when sawn through, nor does division of the inferior dental nerve give rise to any trouble. If Esmarch's operation is performed for fixation of the jaw due to a unilateral cause, then the muscles of the side on which the operation has not been performed will, of course, close the jaw, but antero-posterior and lateral masticatory movements would necessarily be very imperfect from the inability of the external pterygoid, masseter, and temporal muscles to act on the side from which the wedge had been removed. We should, indeed, expect the body of the jaw to be somewhat pushed over to the side operated on by the external pterygoid of the other side. It has sometimes happened after Esmarch's operation on both sides that the power of swallowing has been interfered with from loss of a fixed point for action of the elevators of the hyoid bone when the body of the jaw has been detached from the rami. A case under Mr. Bennett's care so well illustrates the advantages and disadvantages of Esmach's operation and excision of the condyle that I will give a short abstract of it. The patient suffered from complete fixation of the jaw. Mr. Howse, at Guy's Hospital, exposed both temporo-maxillary joints, finding very firm ankylosis, and excised both condyles. The joint again became fixed, and Mr. Howse then removed a portion of one ascending ramus, but this subsequently united. Mr. Bennett then performed Esmarch's operation on both sides with a week's interval. The jaw opened after the second operation, but the patient was quite unable to close it, and as the elevator muscles of the hyoid bone had no longer a fixed point of attachment he became unable to swallow and had to be fed by a tube passed through the nose and down the pharynx for two days. The jaw was then fixed in position by an elastic bandage and the power of swallowing returned. The power to close the jaw also ultimately returned. Mr. Paul Swain reports a case of bilateral ankylosis in which he removed a triangular piece of bone from both angles of the jaw at one operation with very satisfactory results. There was no interference with swallowing, and no mention is made of of inability to close the jaw. Doubtless some anterior fibres of the muscles were attached to the lower jaw in front of the section of the bone, and enabled the patient to close the jaw, and thus give the hyoid muscles their fixed point for action. There are, of course, many cases in which we have no choice between an operation on the joint and Esmarch's operation—cases in which the jaw is fixed by a dense cicatrix such as may follow cancrum oris or injury to the cheek or jaws. In such cases we must make a false joint in front of the cicatrix, but they are almost always unilateral.

Mr. Paul Swain has collected the records of twenty cases of operation for closure of the jaws the result of injury or disease of the temporo-maxillary articulation. He found that out of this number seven resulted from the after effects of scarlet fever, three from measles and subsequent otorrhœa, three from rheumatism, two from affections of the teeth, and five from injury. In eleven cases the condyle or a portion of the neck was excised, and in five Esmarch's operation was performed. To the cases collected by Mr. Paul Swain must be added four recently published by Mr. Arbuthnot Lane.

Case 1.—Bony ankylosis after fracture of the zygoma. The upper and posterior angle of the jaw with a portion of the temporal bone to which it was fused was excised with good result.

Case 2.—Bony ankylosis from old suppurative arthritis, with very imperfect development of the jaw. The same operation was performed, and the body of the jaw was divided as well to overcome the deformity. The result was good.

Case 3.—Bony ankylosis after abscess in the neighbourhood of the jaw. Same operation and result.

All these patients were children. Mr. Lane has operated once in an adult and obtained a very good result for a time, but relapse took place and he had to remove more bone. He lays stress on the difficulty of thoroughly free removal of bone in these cases, as all trace of the joint has disappeared and the neck is ill developed, but believes that it must be freely removed to ensure a successful result.

*The Lancet.*

# PULPITIS.

### By Dr. C. N. JOHNSON.

The question has risen as to the difficulty of diagnosing these cases. It is difficult sometimes to locate the pain. Patients frequently refer it to some remote point. A lady came to my office early in July saying that she was having trouble on the right side, pointing to the interproximate space between the second bicuspid and first molar. She said the pain was located there. I made a careful examination and could find no cavity. The pain was not severe and I told her it was probably only temporary. While I was absent from the city she had a recurrence of the pain and had the tooth examined by some other dentist, and he was under the impression that there was a cavity in the first molar. However, she did not have anything done, and came to my office one day after I had returned. She came in the midst of excitement and began to take me to task for overlooking a cavity and allowing her to suffer this pain. She pointed out the tooth which she thought was giving the trouble. She pointed definitely to the second bicuspid. I examined it, and could find no cavity in either the first molar or second bicuspid.

My method of diagnosing these cases is this: Instead of cold I use heat. I take a cone of heated gutta-percha, which is tenacious and better than a hot instrument. It will cling to the surface of the tooth. I applied this to the second bicuspid and she flinched. I said: Is that the character of pain you have been suffering?" She replied: "No." I then went from one tooth to the other until I came back to the third molar, which had a large oxyphosphate filling in it. When I applied the heat to it she flinched again, and exclaimed, "There that's the tooth. I told you all the time it was that one," and she put her finger on the second bicuspid. I drilled the oxyphosphate filling and struck a case of pulpitis. I destroyed the pulp and this was the end of the trouble. This is another instance illustrating the fact we cannot take a patient's word as to what particular tooth is giving trouble. We must find it out ourselves. The rule I follow is to test one tooth after another. The patient will flinch when a living tooth is touched, but it will not be the same character of pain that they have been suffering. It is momentary and passes away. But the moment you strike the right tooth they will say, "That *is* the kind of pain I have been suffering."—*Dental Review.*

## THE DANGERS OF COCA WINES.

In an American work on pharmacy we are told that the best coca wine is made by adding an ounce of fluid extract of erythroxylon, an ounce of alcohol, and an ounce of sugar to 14 ounces of claret, but it is significantly added that "in place of claret any other palatable wine may be used according to the demand or preference of the prescriber or customer." The dangers of preparations of this description are obvious. The patient not only acquires a liking for alcohol—which is presented in its most seductive form—but soon falls a victim to what Erlenmeyer calls the third scourge of humanity—the coca habit. The first effects are slight, and are probably overlooked, but continual indulgence creates a craving, which the victim seeks to satisfy at all risks. The ordinary alcoholic stimulants are no longer fouud sufficient, and coca wine is taken in addition. The sufferer from cocainism soon becomes nervous, tremulous, sleepless, and without appetite, and finally drifts into a condition of pitiable neurasthenia. It is surprisng that in recent works on pharmacology and medicine no reference is made to this condition, the only exception being in the case of the fourth edition of the late Dr. Milner Folhergill's *Practitioner's Handbook of Treatment*, where the following statement occurs: "Coca wine and other medicated wines are largely sold to people who are considered and consider themselves to be total abstainers. It is not uncommon to hear the mother of a family say, 'I never allow my girls to to touch stimulants of any kind, but I give them each a glass of coca wine at 11 in the morning, and again at bedtime.' Originally coca wine was made from coca leaves, but it is now commonly a solution of the alkaloid in a sweet and strongly alcoholic wine." This is really the gist of the whole matter; coca wine is largely consumed by people who fondly believe themselves to be total abstainers, and who are active enough in denouncing those who take a little wine or a glass of beer at their meals. The sooner their delusion is dispelled the better for themselves and for the unfortunate children over whom they exercise supervision.

*British Medical Journal.*

A CROWN CARRIER.—Take an orange wood stick, cover it with wax on one end, then carry the crown to place already filled with cement."—*Rosenthal, Review.*

# Reports of Societies.

## ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, December 6, 1897. Mr. W. E. Harding, L.D.S., President, in the chair.

Mr. Stephen Keele signed the Obligation Book, and was admitted a member of the Society.

Mr. George Nicholas Willis, L.D.S.Eng., (London); Dr. John E. Grevers, M.D. (Amsterdam); and Mr. Thomas Edward Constant, L.R.C.P., M.R.C.S., L.D.S. (Scarborough), were proposed as members of the Society.

Mr. Joseph George Turner, F.R.C.S., L.R.C.P., L.D.S. Eng., was balloted for and unanimously elected a resident member of the Society.

The Librarian announced the receipt of the following exchanges :—*The Transactions of the Clinical Society of London*, 1897, and the *Year Book of the Royal Society*, 1896 to 1897.

The Curator (Mr. Storer Bennett) reported the receipt from Mr. David Watson of a set of dental instruments, principally for scaling and extracting teeth. They were antique and interesting as showing a particular phase of the profession's development. He also reported having received from Mr. Curnock a specimen of a deciduous molar of an African elephant.

Mr. Mummery showed a gorilla's skull which he had received from Dr. Leon Williams. There was a fracture of the mandible just to the right of the symphysis. The fracture had united and the animal had a very good articulation, and was able to masticate its food perfectly well.

Mr. Mummery also presented two bone dentures to the Museum.

Mr. Storer Bennett said he had put on the table for members to examine a specimen, that had been in the Museum for four or five years, of a gorilla's skull, showing very considerable damage to the bone in the nasal region. He thought it might be interesting for comparison with the specimen of Mr. Mummery's, in showing the enormous amount of damage these animals did to one another when fighting, as was pointed out by Du Chaillu many years ago. The males of nearly all animals fought very much together, especially at the pairing season. He thought that in both cases the fractures were due to fighting.

The PRESIDENT exhibited an elephant's tooth, found when excavation was being made in the garden of a house in Shrewsbury. It was a well-marked specimen from an African elephant, but very small, and was most probably a deciduous tooth. At the Curator's request he had made a plaster model of it for the Museum, because, unfortunately, the owner would not part with the specimen. Probably the explanation of the find was that it was a curiosity brought home from Africa by some former resident of the house, and at his death or removal had been thrown out with a quantity of rubbish, and buried perhaps for very many years.

He remarked that Mr. Mummery's specimen was interesting as showing how much Nature, left to herself, would do.

The SECRETARY read a letter from Dr. Dudley Buxton regretting his inability to be present at the meeting, and expressing a wish, if an adjournment of the debate on Mr. Thomson's paper could be arranged for, to speak on the subject at the next meeting of the Society.

Mr. RUSSELL BARRETT read "Notes on a Case of Composite Odontome," published on page 53.

## DISCUSSION.

Mr. STORER BENNETT said that about 23 was the usual age for the eruption of odontomes, and the mere fact that the swelling in the jaw was not noticed, was, he thought, no evidence whatever that the swelling had not been there for a very long time. It might have been there many years and not been the subject of remark on the part of the patient's friends. He thought the explanation of the cause of the suppuration was a tolerably simple one. The advancing third molar probably caused absorption of the bony septum between it and the odontome, and the sloughing of the capsule was produced by the pressure of the advancing tooth, and hence the suppuration. Sinuses were formed, the pus escaped into the mouth, and for that suppuration the patient sought relief, and then it was that Mr. Barrett found the odontome. He could not follow Mr. Barrett's reasoning, however, which made him conclude that it was a formation of rapid growth. The period occupied in its development was not shown, by the mere fact that nothing was previously noticed in regard to the size of the jaw.

Mr. TOMES said with reference to the swelling not being noticed, that he once met with a case where he thought it desirable to have a consultation with the general practitioner attending the patient, and with Sir James Paget, regarding an enlargement on one side of the nose, and a certain amount of the canine fossa in a young gentleman about 21. They all thought rather gravely of the case, and considered there was probably some new growth causing the swelling, and there was a good deal of anxiety about it until an old nurse appeared and said that the boy from his earliest infancy had had an unsymmetrical face. The father and mother never observed it until he was growing up, and the patient had never noticed it himself. The sequel proved that the nurse was right. That case occurred some ten or fifteen years ago, and the patient was all right at the present time.

Mr. STORER BENNETT asked Mr. Barrett to present the specimen to the Museum.

Mr. BARRETT said he should be delighted to do so after he had taken one or two sections. In answer to Mr. Storer Bennett, with regard to the growth he said he did not base hisconclusions entirely upon the enlargement not having been noticed. The grooving on the front of the odontome had exactly modelled itself to the first molar, and it seemed to him that it must have been fairly rapid for that to have occurred, because it had apparently absorbed all the alveolus between itself and the first permanent molar. The grooving might be due to absorption, but the surface did not look like an absorbed surface, being similar in appearance to the rest of the growth. Had the odontome remained in its own crypt and calcified slowly, he should not have thought it would have become grooved in the way it had. He also based his conclusions on the fact that the calcification apparently was much more rapid than that of a natural tooth.

Mr. W. R. ACKLAND showed a slight modification he had made in Mason's gag. It consisted in having the jaws side by side instead of one over the other, and so made the wedge going between the teeth much narrower—half the width in fact—than the ordinary gag. The instruments were made by Messrs. Ash and Son.

Mr. THOMSON read the following note on "Chloroform in Dental Surgery."

"Although chloroform is not much used in London as an anæsthetic in dental surgery, it is not so in the provinces and the colonies, as in hospital as well as private practice it continues to be largely used. Having been appointed Dental Surgeon to the Melbourne Hospital, Victoria, in 1883, I found chloroform the anæsthetic generally used. Nitrous oxide was not used there till three years later. Chloroform was given, by any of the resident staff available, in the sitting posture, and without any special preparation, and though I had several cases every week I do not remember any serious difficulties arising. In private practice the family doctor was often brought in to give chloroform, and I learned in this way how dangerous it might become in inexperienced hands.

"Having, however, gained confidence in certain administrators, I operated only with these, and with uniform success. I carried out a number of experiments on dumb animals, and made observations in all kinds of cases, and noticed that at a stage far removed from deep anæsthesia some operations could be performed with safety, and I have often employed it in the preparation of sensitive cavities. I often extracted a number of teeth at this stage, and Dr. Springthorpe, Lecturer at the Melbourne University, read a paper at a meeting of the Odontological Society of Victoria, advocating this method.

"Although for so many years I used chloroform with such success, it now finds no place in my practice, for I rarely require a longer anæsthesia than can be obtained with nitrous oxide. If the general practitioners who still give chloroform knew the special dangers and difficulties in dental cases, they surely would no longer be parties to its administration.

"If country and colonial dentists can be shown that their practice in this matter is an altogether unscientific and out of date procedure, the long list of dental fatalities may be closed."

Mr. H. Baldwin said he supposed there was no reason why ether should not be given in country places and in the colonies. Sometimes they even yet required a long anæsthesia for dental operations, and something better than gas in that respect had to be used. It seemed to him that whenever ether could be used it was decidedly the anæsthetic in preference to chloroform in such cases.

Mr. J. F. Colyer said that one had only to look through the columns of the dental journals to see the large number of deaths from chloroform which were constantly being recorded, compared to those from nitrous oxide or ether. He did not think they had any justification at any time in giving chloroform for the preparation of cavities. They had two drugs—one nitrous oxide and one chloroform; one was a safe anæsthetic, the other a dangerous anæsthetic. He failed to see why they were to choose the dangerous anæsthetic instead of the safe one. It always seemed to him that in practice patients placed themselves in their hands, and expected from them the best possible advice. Were they justified, therefore, in advising patients to have a dangerous anæsthetic like chloroform, when they had at hand a perfectly safe anæsthetic in nitrous oxide?

Dr. Hewitt said it might possibly be within the memory of certain gentlemen present that some few years ago he devoted a little time to this very subject, and he had the honour of reading a paper at Edinburgh in which he did his best to place before the members of the British Dental Association the chief facts that were then at their disposal concerning the use of chloroform in dental surgery. He was surprised, as Mr. Colyer had hinted, to find what a very large number of accidents there had been in dental surgery, and he was led to the opinion—which opinion he had since held, and which opinion he ventured to believe was held by most of them—that chloroform was not a suitable anæsthetic in dental surgery. He thought they would all agree that the first thing which should guide them in selecting an anæsthetic was that it should be the safest known. If they had to use a little more trouble in giving nitrous oxide they should not allow that point to influence them. That was their first duty to their patient. The next duty was to attend to such details as had heen found by experience to be necessary; in other words, to have their patients properly prepared, their apparatus ln perfect order, and all appliances at hand, in fact, to do everything which could contribute to the comfort and safety of their patients. To put the patient in a chair, avoid all preparations, and administer an anæsthetic which from every side was now known to be far more risky than either nitrous oxide, or ether, was not a thing to be recommended. Chloroform, in addition to being an unsafe anæsthetic, except in very skilled hands, was lisble, as they knew, to be followed by some unpleasant after-effects—another very important thing and another disadvantage as compared to nitrous oxide gas. The sitting posture was open to objection not only from the circulatory side, but also, and quite as much, from the respiratory side. When patients were sitting in chairs, and especially when they were more or less deeply anæsthetised with anæsthetics such as ether and chloroform, unless care was taken an asphyxia factor was liable to be introduced. This factor, coupled with the depressing effects chloroform exerted upon the system was liable to be attended by grave consequences. With regard to the effect of shock from an imperfect anæsthesia, he thought the balance of evidence at the present time was to the effect that operations under light anæsthesia were not more likely to be attended by cardiac depression than operations taking place during deep anæsthesia. That there were cases in which chloroform should be used in preference to other anæsthetics there could, of course, be no doubt, but they were exceedingly few and far between. As an instance he might mention that not long ago it happened to him to have to give chloroform for a dental operation. The patient had laryngeal disease and there was very difficult breathing, and ether or nitrous oxide would have been out of the question; only in such a case should chloroform be employed.

Mr. W. A. MAGGS said Mr. Thomson was to be congratulated upon two things: on having operated upon a certain number of cases under chloroform, and on having discontinued the practice. He felt that if Mr. Thomson had gone on he might have regretted the course, as it was only a question of time before some dangerous conditions would have arisen. He was fortunate, however, in having been successful, but that was no reason why the members of the Society should fall in with the same view. Having discontinued the use of chloroform, he thought Mr. Thomson would feel he was on safer lines when acting as a dental surgeon if he restricted his practice to the administration of gas, or, as had been suggested, gas and ether for prolonged operations. At any rate, Mr. Thomson had passed through a critical period, and he congratulated him upon being there to tell the Society frankly what he had done.

The PRESIDENT thought it was undoubtedly the fact that chloroform was very largely given in the provinces in dental operations. He thoroughly agreed with the remarks made by Dr. Hewitt and others adverse to the administration of chloroform in dental work.

Mr. TOMES said he himself for a very great number of years, indeed from the very first introduction of nitrous oxide, had consistently and absolutely refused to operate under chloroform. He did not mean to say that had he met with a case, like that related by Dr. Hewitt, where there were laryngeal complications he might not have used it, but he had never met with a case in which it appeared necessary, and he had uniformly and absolutely refused to use chloroform, no matter if the patient had safely taken chloroform a number of times before, and no matter if the medical man who came with the patient strongly urged it.

Mr. HENRY WOOD said he should very much like to have had an expression of opinion from members with regard to the A.C.E. mixture. He had operated many times when the patient had been anæsthetised with A.C.E. Where a large number of teeth had to be extracted and in certain other cases nitrous oxide would be entirely out of place. For instance, where many teeth which had been troublesome to move, each one requiring perhaps two minutes to dislodge—and he had actually encountered such cases with four, five or six and more of that nature in the same jaws—in such cases he was decidedly in favour of A.C.E., the patients, of course, being thoroughly prepared for it at home.

Mr. C. ROBBINS said he had never yet had a case where nitrous oxide, or nitrous oxide in combination with ether, had not been sufficient. He had absolutely refused to operate under chloroform unless in the patient's room and under proper conditions, and during eighteen years he had only had two experiences in that direction.

At this period of the meeting Mr. BALDWIN moved the suspension of the rules in order that the debate might be continued, but on being put to the meeting it was lost, and the President therefore called upon Mr. Thomson to reply.

Mr. GEORGE THOMSON briefly replied to the various speakers.

Mr. CHAS. TOMES then read a Communication upon "Partial Suppression of Teeth in a very hairy Monkey," which is published on page 49.

## DISCUSSION.

Mr. H. BALDWIN asked Mr. Tomes if he were certain the animal never had more teeth than was shown, or if any of the teeth had not possibly been lost, in the process of absorption that he had referred to. He should also like to hear about the age of the animal—whether it was an old or a young one.

Mr. TOMES said it certainly had had teeth in the front of the mouth, judging from the condition of the alveolus, but he did not think there had been any more at the back. As to the age, nothing was known save that it was not a menagerie specimen. It was a wild specimen, and the animal was fully adult; and as its teeth were, to a certain extent, worn, it probably reached the usual age of such a monkey.

The thanks of the meeting having been given to those gentlemen who had brought forward casual communications, to Mr. Thomson for his paper, and to the various members who had assisted in the discussion, the Society adjourned until January 10, 1898.

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# Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

*To the Editor of the "British Journal of Dental Science."*

129, Great Portland Street,
Portland Place, W.
December 29th, 1897.

Dear Sir,—My client, Mr. Edward Davis, whom I represented in the recent litigation instituted against him, at the instance of Mr. Cohen, has consulted me respecting the comment published in the columns of the monthly Journal called *The British Journal of Dental Science*, and I fear from the language in which the article styled "Self-laudation," is couched, that the criticism may have been published without full knowledge of what in fact transpired, as well prior to the action being commenced, as at the hearing thereof, when the same came before His Honour the learned Judge, Judge Bacon at the Bloomsbury County Court, on November 3rd, 1897. It was stated in Court, and I am told, could have been supported, that the teeth made by Mr. Davis for Mr. Cohen were of skilled and correct production, and it is well recognised that adjustment of the teeth to the mouth after manufacture thereof is frequently needed, and although opportunity was afforded Mr. Cohen of pointing out to Mr. Davis any alleged inaccuracy in the workmanship of the teeth, it appeared to require judicial direction before this proposal was conceded.

I deem it necessary to mention that neither was Mr. Davis, nor were any of his witnesses, expert or otherwise, put into the witness box to substantiate and refute the allegation launched against him, on the contrary, Mr. Davis repeated in Court, the magnanimity which he has held forth, which it is his wont to extend to all his patients, that is to say, that he was then still wishful as he had been throughout, of doing what lay in his power to give satisfaction, and fit the teeth according to whatever may be the shape of the mouth, and the action was adjourned by the learned Judge, that this generous proposal once again submitted at the instance of Mr. Davis, might be carried into effect. I observe with unfeigned pleasure how pre-eminently you quote "independence and liberality" on the front sheet of the valuable Journal, and equally essential as it is to jealously uphold and maintain such emblems as marks of one's distinction, and as one's foremost characteristics, as equally important is it not to overlook the well known doctrine "that there are two sides to every question," and before publication is given to comment for or against a matter, it is but just that the circumstances and the narrative shall be disclosed, lest opinions be formed which would work harshly and unjustly to any who are parties to the controversy. It is not my intention to weary you upon the subject, but having regard to what has been circulated and published in the columns of the Journal, in fairness and in justice, should not a paragraph now be inserted in the next issue of the Journal, and announced that Mr. Davis' case was not heard, or any evidence adduced on his behalf, doubtless owing to the reiteration of the generosity placed by my client at the disposal of Mr. Cohen, that is to say, that Mr. Davis repeated in Court his willingness in the same manner as he had previously done, to appease Mr. Cohen and make him comfortable.

I am,
Yours faithfully,
ARTHUR L. MIERS.

⁂ We have preferred to publish Mr. Miers' letter *in extenso* instead of inserting another paragraph.—Ed. B. J. D. J.

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.

2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.

3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.

4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.

5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.

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British Journal of Dental Science.

No. 721. LONDON, FEB. 1, 1898. VOL. XLI.

# ON THE ŒTIOLOGY AND TREATMENT OF GLANDULAR ENLARGEMENTS IN THE NECK.*

By A. G. MILLER, M.D., F.R.C.S.E., Consulting Surgeon to the Edinburgh Royal Infirmary.

It is a marvel to me that in these days of investigation and discovery of organisms, and other causes of disease, the very common, evident, and (in many instances) easily removed causes of glandular enlargements in the neck are so often ignored, or at any rate overlooked. It is the object of this paper, therefore, to point out the importance of discovering, and, if possible, removing the primary causes of gland enlargement. During my fifteen years' experience as Surgeon to the Edinburgh Royal Infirmary, I have seen many cases in which the removal of a bad tooth, or the curing of a chronic pharyngitis, or tonsillitis, would have prevented gland trouble, and saved much disfigurement. *Causa sublata, tollitur effectus* is an old saying, and I hope to apply aud illustrate it in the following argument.

There are many varieties of glandular enlargements that one meets with. I shall, however, refer to only two, viz., the *simple chronic* and the *tubercular*. I have selected these because they are the most common, because they are often difficult to diagnose and differentiate from one another, and because they best illustrate the subject of my paper. Before dealing specially with the *ætiology* of gland enlargements I shall say a few words on *diagnosis*.

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* Dr. Miller has favoured us with a copy of his paper on this important subject, which also appears in *The Scottish Medical and Surgical Journal*.

Simple enlargements are not usually discovered nor advice sought on account of them until they have existed for some time. The patient is usually a child ; often delicate looking : but sometimes quite healthy otherwise. On examination one finds one or more lumps of an almond shape, firm (but not very hard), not sensitive, freely movable, enlarging very slowly, and with a history perhaps of an acute or subacute attack of inflammation. Sometimes the invasion is insidious.

Tubercular disease of glands on the other hand has three distinct stages. In the first stage the condition is similar to what I have just described. In the second stage softening takes place (caseation) of one or more of the glands when they become matted together. In the third stage there is further softening (liquefaction), and fluctuation can be made out. The skin then becomes adherent, discoloured and thin. The abscess, so-called, points, and if not opened, discharges its contents on the cutaneous surface.

Tubercular disease is readily recognised in the second and third stages, but in the earliest stage it is not easily diagnosed from simple non-tubercular enlargement. Indeed, it is sometimes impossible to differentiate the two ; because any simple chronic adenitis may become tubercular, and a tubercular affetion may commence as a simple adenitis.

If this be true it brings out a fact of great practical importance, viz., that there is a *pretubercular stage.* Personally I am firmly convinced that there is a pretubercular condition in many cases ; and I am sure that a very large proportion of the cases of tubercular gland disease that I have seen, might have been prevented by the timely discovery and removal of a carious tooth or some other cause of gland irritation.

It will make things easier if we now consider the anatomical relations of the cervical glands to the various parts of the head, face, and neck from which they derive their lymphatics.

I have found it convenient to divide these glands into the following groups which differ slightly from the groups given in anatomical works. (1) Those at the back of the neck—the *occipital* group. (2). Those behind [the ear—the *mastoid* group. (3) Those in front of the ear—the *parotid* group—which may be again divided into the *superficial* and the *deep*. (4) Those under the jaw—the *submaxillary* group. (5) Those lying [along the sterno-mastoid muscle—the *sterno-mastoid* group—which may also be conveniently divided into the *superior* and *inferior*. (6) Those above the clavicle—the *supra-clavicular* group.

These various groups of glands receive their lymphatics as follows (so far as I have been able to make out)—The occipital from the posterior part of the scalp ; the mastoid from the scalp and ear : the parotid from the front of the head, the ear and several other parts. This group, hower, requires further differentiation, and therefore I have divided it into the superficial and deep parotid groups. The former glands are served by vessels from the front of the scalp, the external ear and meatus ; while the latter are connected with the orbit, nose, pharynx, middle ear and upper teeth. The submaxillary glands derive their lymph from the cheeks, lips, mouth and lower teeth. Of the sterno-mastoid groups, which, along with the submaxillary glands, are those most frequently affected, the upper series is connected with the tonsils, pharynx, œsophagus and larynx ; while the lower ones are related to the deeper structures, and are generally found to become affected secondarily to the upper ones. The last group (supra-clavicular) is connected with the intra-thoracic and axillary glands, and derives its lymph from thoracic regions mostly.*

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* The superficial (subcutaneous) glands are connected with the skin, and are affected by cutaneous irritations such as boils, etc.

The clinical importance of this grouping will be evident if we take some examples.

A child has its occipital glands enlarged or suppurating. Employing the above classification as our guide, we at once examine the back of the head, and will most likely find some eruption or pediculi, or both, as the cause. It the posterior auricular glands (mastoid) should be affected, we examine the scalp and external ear. If the submaxillary glands be inflamed, we look at the lips and into the mouth for the source of irritation. If the glands in the upper cervical region be enlarged, there is a much wider range of investigation opened up. We may find the cause in the nose, throat, or middle ear. Once more, if the glands in the lower cervical region be affected, we will probably find, after investigation of the other groups of glands, that the upper cervical, or mediastinal, or axillary glands have been diseased first, and that the irritation has spread by contact to those lower cervical and supra-clavicular groups. I have noticed tubercular disease of these last-named glands associated with old-standing, quiescent, or perhaps to all appearance cured, phthisis.

Having demonstrated the importance and clinical bearing of the anatomical arrangement and relations of the cervical glands, we are in a better position for discussing the *ætiology* of glandular affections.

*Causes*, in my student days, were usually classified into predisposing, exciting and maintaining. In the present day they are apt to be disposed of under one term, viz., *organisms*. Without desiring to undervalue in any way the influence of germs, I shall adopt the old-fashioned method at present as being more convenient.

1. *Predisposing causes* of glandular enlargement in the neck certainly exist. I shall refer to two, viz., childhood and constitution or heredity. No one can deny that children

suffer from gland affections more than older persons, and, whatever, explanation may be given, or definition offered, of the terms "constitutional proclivity" and "diathesis," there can be no reasonable doubt that some persons are more liable than others to gland affections, and also that this tendency seems to "run in families."

2. *Exciting causes* might almost be classed under the one head *organisms*. But we cannot get rid of the matter thus easily, for the question naturally arises, How do the organisms obtain access to the lymphatic glands? In answering this question, we have to consider two points—first, the organisms (or their products) have to be absorbed by the lymphatic vessels; and second, there must be a favourable surface from which absorption can take place. These conditions are usually supplied by broken skin or mucous membrane, an inflamed surface, or a lodgment, in some "pocket" or cavity, of septic decomposing matter. I have already described how such open doors are provided—a scalp eruption, a carious tooth, adenoids, tonsillitis, pharyngitis, middle ear disease, and so forth. These various pathological conditions provides the organisms, their products, and the surface capable of absorbing mischief. The natural function of the lymphatic glands is to receive the absorbed materials, to filter them, and to make them innocuous. When this is accomplished all is well and all ends well, but sometimes the septic poison is too strong, or the glands fail in properly performing their function, and then we have glandular infection, irritation and inflammation. We may say, then, that the exciting causes are organisms and their products, plus those conditions of mucous membrane, teeth, etc., which favour their lodgment and absorption by the lymphatics.

3. I now come to the third class of causes, and to this class I wish to draw special attention. The *maintaining cause* of glandular affections is often the persistence of the

exciting cause as I have described and defined it. Remember that I am speaking of simple chronic and tubercular gland affections in the neck. These would not exist at all were there not some maintaining cause. A temporary inflammatory enlargement often appears and disappears along with the primary cause. If the infection be intense or the glands weak, the irritation may lead to suppuration—the gland is destroyed, suppurates out, and there may be an end to the matter. If, however, a gland once irritated remains enlarged, refuses, or is unable to recover, there must be some explanation, some cause of this. This cause I call the maintaining cause, and the maintaining cause, is not unfrequently the exciting cause unremoved. Let me press the argument yet further. Seeing that the organisms and their products cannot obtain access to the glands without an open door such as I have described, I take it that the real maintaining cause is the open door. Let me illustrate this. The glands of the neck become enlarged in connection with a tonsillitis or pharyngitis. If these conditions be cured, the glands will recover of themselves. Again, the glands under the jaw are enlarged and painful in connection with a bad tooth. Let the tooth be extracted and the glands will cease from troubling. The irritation and enlargement of the glands disappear when the cause and source of the irritation are removed. But if the irritant be not removed the irritation is continued, the glandular enlargement persists, or gets worse, and the patient suffers from chronic glandular enlargement.

Now this raises two points which must be dealt with. (1) In some cases glandular enlargements (chronic adenitis) remain after all apparent cause has disappeared. (2) Some cases persist after the cause is removed, and the open door properly shut. Examples of these conditions (which are practically the same) are common in the experience of all, I am sure. In the former the tonsillitis or pharyngitis has had time to disappear, but the glandular irritation (or its effects) remains. In the latter case the tooth is extracted or the adenoids removed, but the glandular enlargement persists.

What is the explanation? It is one and the same in both cases, viz., some irritating factor has lodged in the gland itself, which the gland cannot destroy or expel, possibly on account of its natural inability to do so. That factor, I take it, is an organism, usually the tubercle bacillus. It has entered by the open door, and refuses to be expelled—it has come to stay.

This brings up another interesting point. *Persistent glandular enlargement after removal or disappearance of all discovorable sources of irritation may mean that the glands have become tubercular.* This, if true, is a most important fact. I have become convinced of it both by the course of reasoning which I have just detailed, and also by my experience. Let me put it in this way. Is there doubt and difficulty in deciding as to whether, in a given case of glandular enlargement in the neck, the condition is simple or tubercular? If, on careful investigation, no evident source of irritation be found, or if some irritating cause has been discovered and removed, and yet the glands do not improve, then the presumption is that the glands are tubercular, or are at least in the pretubercular stage to which I have referred previously.

Going back then to *maintaining causes* I would narrow them down for practical clinical purposes to two, the *open door* and the *tubercle bacillus.*

This brings me to my "practical application," in other words, to treatment. What I have to say will be very brief. (1) In all cases of glandular enlargement in the neck look for the cause and treat it, or have it removed at once, and generally the glands will get well of themselves, or with the help of some simple local application such as a carbolic compress.*

Many patients have been sent to me for excision of glands, whom I have been able to send home in a few days well or nearly so, after the extraction of a stump or removal of some such source of irritation.

No local treatment is appropriate or of any avail so long as there is an irritating cause present. Remove the cause and the glandular enlargement will disappear.

*Causa sublata tollitur effectus.*

(2). Secondly, if all visible cause has been removed, or has disappeared, and yet the glandular enlargement remains, *remove the glands*, even though you may not be quite certain that they have actually become tubercular. So long as there is chronic glandular enlargement there is risk of tubercular infection. My experience has been that, when glands have been removed "on suspicion," they have almost invariably turned out to be tubercular. I do not think it is safe to wait till one is perfectly certain. By that time, in all probability, more glands will have become infected, and the operation of excision will, when performed, be more severe, while the possibility of extirpating the whole disease will have become more doubtful.

I would sum up the argument of my paper in the following aphorisms ;—

1. Glandular enlargement has always a *cause* which should be *sought for* and *removed* if possible.

2. If the cause be not removed the enlargement will *persist*, and such *persistence* (the open door) may give occasion to *tuberculosis*.

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* I have already drawn attention to the efficacy of carbolic lotion applications in reducing simple inflammatory affections. Vide *The Hospita* 1st and 8th July, 1893.

3. Persistent enlargement, after removal of all discoverable causes, generally means tubercular infection or a *pretubercular* condition, therefore all persistently enlarged glands should be excised.

## A CASE OF ACUTE SEPTICÆMIA.*

By F. W. Minshall, L.D.S.I.

A patient—a girl of 14 years of age—consulted him on Saturday, the 10th of April. She had suffered the previous evening from toothache and was still in great pain. On examination it was found that three teeth were in a condition necessitating extraction, viz.: the left upper first molar, the region of which was very much swollen, and the first molars of the lower jaw, on the right and left sides. The pulp of the left lower tooth was dead, and in connection with it was a fistulous opening in the buccal side of the gum. It was noticed that one of the lower eyelids was somewhat swollen, as if the patient had sat in a draught and taken cold. Gas was administered, and the three teeth were extracted without difficulty. The patient made a quick recovery and left greatly relieved by the extractions. She was taken home, given some light refreshment and sent to bed.

She shortly afterwards complained of very severe headache, did not sleep, and the doctor was called in later in the day. The symptoms became still more marked—the swelling increased; the right side of the face became affected about the right eye; the left eye ultimately was completely closed. The patient became semi-comatose, and later, complete coma supervened. On the following day a second medical man was called in, and it was decided to inject streptococcus anti-toxin. That was not procured until 10 o'clock at night. It was then injected. The patient's symptoms remained the same, but there was a fatal termination at seven o'clock on the Monday morning. Mr. Minshall continued : I don't know that I have much more light to throw on the matter, except to add that for years my invariable practice has been to cleanse and sterilize *all* instruments with boiling water, followed by immersion in 1 in 20 carbolic acid solution. I relate the case more as a warning to fellow-members of the Society than for anything else. I have seen both the medical men, and they practically agree upon the case. One of them was a little inclined to think that the absorption of the septic matter took place after and as a result of the extraction. The other one was quite convinced in his own mind that it had taken place before I had seen the patient.

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* Read before the Manchester Odontological Society.

## A CASE OF HYPERTROPHY OF THE GUMS.*

Mr. Whittaker showed models of a case of hypertrophy of the gums, and read the following notes of the case, placed at his disposal by the kindness of the House Surgeon of the Manchester Infirmary :—

"About eighteen months ago patient noticed swelling and soreness of gums on right side and in upper jaw ; about the same time, or a little later on, the gums of the lower jaw began to swell, and swelling began to extend all round the gums. Fourteen months ago patient was advised to go to Blackburn Infirmary by Dr. Fraser, who had previously seen her and given her mouth washes and medicine. At the

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* Communicated to the Manchester Odontological Society.

Infirmary patient remained about seven months, and had her gums removed twelve times during that period—seven times without an anæsthetic, and five times under chloroform. She had her gums cut, cauterised, and removed in various ways—but they grew again, and became as large as ever in a few days. Patient has suffered much from toothache during the last eighteen months, especially from a tooth on the right side, the 2nd right upper molar. This tooth troubled her just before her gums began to swell, and patient tried to have it extracted, but all the dentists she went to refused to draw it. At the first operation at Blackburn Infirmary they tried to extract this tooth during the operation under chloroform, but failed, and broke the tooth, part of it remaining in the jaw, and this piece is still in. Patient said that her teeth felt loose when gums first started to swell, and that they feel loose now early in the morning, when her face is also swollen; and patient has a bad taste in her mouth, and matter oozes up from the roots of the teeth, which are covered with tartar in the morning.

An operation was done on the 13th: Ether. Enlarged gums in the upper jaw were chiselled away, and the gums were then cauterised. Other portions were removed with curved scissors. The last molar tooth on the left side was extracted. The lower jaw was not touched.

On April 30th chloroform was given, and the gum on the lower jaw was freely removed from the external surface with scalpel and dissecting forceps. The raw surface was well cauterised with the thermo-cautery."

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To Improve Oil-Stones.—To clean and otherwise improve the working qualities of an oil stone, smear a flat block of wood with glycerine and fine pumice and rub the stone, face down, till all traces of previous usage have disappeared.—*Odontographic.*

British Journal of Dental Science.

LONDON, FEBRUARY 1, 1898.

## BLIND LEADING THE BLIND.

The superficial knowledge of dental matters displayed by the average medical man is only natural. He is obliged to have a general knowledge of the whole human frame, and the cause, course and treatment of its various diseases. If he possesses more than a general knowledge of any particular organ it is because he has taken the pains to go through a special course of study in that branch. Furthermore, if he decides to follow up that branch he finds that his full time and energy must be devoted to it, if he wishes to become master of his subject. Most medical men at the present time, recognising this fact, employ the services of a specialist, and in this way the dentist often becomes a valuable ally to the physician and surgeon in the treatment of his patients. Of course in remote country places the general practitioner must be prepared to do his best in many emergencies in which time or expense forbid the employment of the specialist, and therefore the occasional treatment of dental cases is to be expected. But we consider that in towns and places where the help of the dentist is obtainable, the general practitioner should delegate such work to him.

We have recently read in *The Practitioner* a paper read by Dr. F. C. Coley for the benefit of his medical brethren, on "The Medical Treatment of Toothache." Dr. Coley is Physician to two Hospitals in Newcastle-upon-Tyne, in which flourishing borough there is no lack of dentists, and yet, judging from his paper, he considers himself not only competent to treat this complaint but to teach others. Now the first requisite for a teacher should be a knowledge of his subject, but from the intrinsic evidence supplied by the paper, Dr. Coley appears unacquainted with the causes of the various kinds of toothache, and his remedies are unscientific. We must, however, give him credit for not desiring to extract every aching tooth presented to him ; in fact he says "that very few toothaches are incapable of permanent relief without extraction of the tooth. Thousands of people," he goes on to say, "have carious teeth without toothache, which proves that caries is only one factor in the production of pain." This sentence is most misleading, the cases in which toothache arises unconnected with caries are so few as to be a negligible quantity ; caries directly or indirectly is the great factor of toothache, and to say that it is "only one factor" is to minimise in the eyes of his medical brethren the fount and origin of that "loathsome disease," as Sir James Crighton Browne designates it, which is the most wide spread of any disease at the present time in our country, and the fruitful source of trigeminal neuralgia, and indigestion produced by improper mastication. Dr. Coley properly deprecates the employment of opium, morphia, and alcohol internally, the use of which dangerous drugs for pain being, we fear, on the increase, but when he informs his medical brethren of the treatment he adopts, we fear he is on less safe ground. "The pain of a hollow tooth" (what sort of pain is that?) is to be removed by repeated applications of carbolic acid, to be followed by "stopping if possible," afterward. He relates a case in which he applied cocaine to the gum for a "raging neuralgia" after the extraction of several teeth. (This cannot be called toothache however.) This eased the pain, and the neuralgia, to which the patient had been subject, never returned. The doctor attributes this to the cocaine and a quinine mixture ; we are inclined to think the severity of the symptoms was due to the presence of an alveolar abscess (which often increases in intensity shortly after the offending tooth is removed) and that the subsequent immunity was due to the removal of the offending teeth. Dr. Coley rings the changes on quinine, gelseminum, exalgin and salicylate of sodium, but the most remarkable is the remedy for "a kind of toothache which comes on a while after taking food" (how is it our text-books have unaccountably overlooked this interesting variety?). The remedy for this is a "seidlitz powder minus about a quarter of the acid, so leaving an excess of alkali." It is satisfactory to know that in a typical case of this kind the pain ceases instantaneously.

Now we daresay Dr. Coley treats his dental patients and instructs his brethren according to his lights; but are they not ancient lights? Empiricism in treatment is unfortunately still amongst us, but we say, and say it advisedly, that in dental surgery it has been reduced to a minimum. We wish to point out that Dr. Coley has lost sight of the first principle of his art, "remove the cause and the effect will cease." The cause of toothache *par excellence* is caries, and its *sequelæ*, therefore, if we banish caries we do away with toothache. Dr. Coley has also lost sight of the fact that even if the "pain of a hollow tooth" is deadened, the tooth has often decayed to such an extent that even the efforts of the most expert operator may not be successful, and so may justify the somewhat pessimistic view with which he seems to regard the operation of stopping. We wish the medical profession to realize much more than they do that the stopping of a tooth, if properly performed in good time, is the most perfect operation for the replacement of lost animal tissue known to us. If Dr. Coley had written a paper in which he advised his brethren to take a greater interest in the mouths of their patients, by inculcating cleanliness and attention to caries in the early stages, we consider he would have done more good than by recommending drugs for the alleviation of a condition, of the pathology of which he still seems to have much to learn. Notwithstanding our criticisms we consider Dr. Coley is, and earnestly intends, doing good by bringing the subject so forcibly to the minds of his medical brethren.

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THE NEED OF THE HORSE-DENTIST.—That "civilized horses" as well as civilized man require the services of the dentist is shown by the following paragraph in the *Field.*

"Some years ago a test was made by an express company, who had 600 horses in constant use, twenty-five of which were indiscriminately selected for proper dental treatment, and separately weighed. Their oats and maize were reduced two quarts per day each. After the first month a great improvement in their general condition was apparent, continuing during the second and third months, when they were again weighed, and it was found that an average increase of 48 lbs. per head was the result. The test lasted during the hot months of July, August, and September, when flatulent colic was very prevalent in the stable; yet not one single case had occurred among these twenty-five horses. Since this trial, and whenever a car-load of newly purchased horses arrives, it is considered a waste to feed them until their teeth are examined and put in proper shape." In the same manner much of the food of man is sheer "waste," owing to imperfect mastication and non-digestion.

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THE LATEST FORM OF ADVERTISING—Since an ingenious dentist formed the plan of distributing sets of teeth free to commemorate the Jubilee (and for other reasons) the example seems to be freely followed by slavish imitators, so that now it would appear that a regular part of the agenda of Town Councils and similar bodies is to receive and discuss such applications. We hope that the Town Clerks' rest at night is not disturbed by worrying over the rival claims of edentulous candidates.

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A THEORY OF THIRD DENTITION.—M. Dghoul of Rennes has come across two cases in which a third tooth has appeared, in the one case a canine, in the other a molar. The patients were two women, one of 54 and the other of 56 years. These facts led M. Dghoul to elaborate a theory which is more ingenious than scientific. The theory is that as he has only found these cases in women and after the menopause, and has never seen one in a man at any age, that woman is susceptible of producing teeth after she has become incapable of producing offspring. He is inclined to think it is a sort of natural compensation. He admits that his facts are neither numerous nor constant enough to be admitted as proof, but he brings forward the theory for what it is worth. The arguments against the theory are too strong we fear. Firstly, there are many cases on record in which a delayed or supernumary tooth has appeared in the male sex late in life, and secondly, woman *per se* is no more a reproductive animal than man under similar conditions.

DOCTORS OF REFRACTION.—According to the *New York Medical Record*, "Doctors of Refraction" is what travelling opticians now call themselves out West, and by the use of the title of Doctor are in a position to mislead those to whom they sell their wares. A bill is before the Legislature of this State whose enaction would place the refracting "Doctor" on about the same legal level with the physician. We trust that the New York Legislature has more sense, if not, we shall soon be having Doctors of Chiropody and Manicure.

FOR CAPPING PULPS.—Dr. Palmer recommends copal varnish on a disc of paper varnished on both sides and inserted without touching the sides of the cavity. The paper gives more protection and takes up but little room. He also varnishes cavities before inserting gutta percha and claims that by this means inseparable union is formed between the dentine and the filling.

CONVULSIONS DUE TO A TOOTH.—Dr. Dann, in the *Dental Practitioner*, relates a case in his student days as follows: A young lad of twelve years, who had previously been in good health, was suddenly seized with a convulsion which had all the clinical marks of epilepsy. A day or two later, there occurred another convulsion. A little later, another; and so on over a period of several months. He was in turn treated by two physicians of large experience, for epilepsy, but with no benefit. Finally his preceptor, whose brother was a practising dentist, was called to see him, and he was present. Inquiry was made as usual, to ferret out, if possible, some etiological factor, until finally, as a mere matter of routine, the doctor inspected his mouth, as was his custom, and seeing a large amalgam filling in a lower molar, he tapped it with the hooked end of an ear scoop, which be happened to have. The moment the steel came in contact with the filling, the boy sprang from the chair in a convulsion. The hint was acted upon. On the following day the tooth was extracted, and from that moment no more fits ensued. Here was a filling composed of different metals which, with the saliva for moisture, acted on the principle of a voltaic pile, upon a sensitive pulp, and a general nervous explosion followed. This filling had been inserted several weeks before the first convulsion.

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Rapid Regulation.—Mr. W. H. Robinson in the Stomatological Gazette relates how a patient, aged about forty, came to him to have a right superior canine straightened. It was so far inside that its labial surface was on a line with the palatal surface of the adjoining teeth, and the lower teeth shut outside of it. The tooth was firmly set. Ordinary appliances moved it so slowly that two or three months would have been required in its locomotion. As the teeth could not be closed when this one was passing the line of the lower teeth, and would have kept the patient two or three months without getting his grinders together, he decided the operation was impracticable unless some new method could be devised to hasten matters. Why not make a socket in the right location in this patient's jaw and move the obstinate canine into it? And this he did, going within about a line of the apex, removing the process and carefully guarding the pericementum of the tooth. The canine now moved easily and rapidly, and in about a week it was brought into its new location. He aimed at moving the apex as little as possible and exercised special care not to disturb its vascular connections. This method of tooth locomotion is, he is satisfied, very easy for both patient and dentist. Indeed, he is not certain but others may have resorted to it before now. He is quite sure that he will often practice it again in cases where teeth to be moved are firmly set. This method has been tried before and found successful. So has the method of sawing through the outer alveolar plate on both sides of the tooth.

BAD SPELLING A DISEASE.—Dr. Crombart claims that bad spelling is caused by a disease. In certain conditions of brain and nerves the patient almost invariably writes "ot" instead of "to." This malady usually affects the brain only in words of one syllable, but cases have occurred where longer words have been so distorted that it was difficult to get their sense. It is a question whether one would be comforted by being told that bad spelling was caused by mental disease, or whether he would prefer to have this lack of accuracy set down to ignorance or carelessness, as most likely. The printer's spelling of technical words is often extremely ludicrous, as in the following list of instruments in a doctor's sale mentioned in the *Lancet*:—A Haryngscope in case, two silver cathetus in case, Syphygniograyh (Mareys), Syringe (Waginal), Trocars and Camicula in case, Frocar and Camicula, Minnim Measles in Box, Hosh (double) (? truss), Hypodermis Case, Box of Cathartics, Gynelological Instruments, etc., in paste-board box. Amongst books were mentioned: Practical Orthop Acdiess, by Reeves, and Human Orthology.

CHILBLAINS.—Those of us who suffer from this unpleasant affection during the winter months, will be interested to read the following observations by Professor A. E. Wright, of Netley Hospital. Professor Wright finds that the blood of persons liable to chilblains takes about three times longer to coagulate than the normal time (three to four minutes). This condition obtains in children (whose blood is deficient in calcium, owing to bone formation), in those liable to nose-bleeding and urticaria, in those of lymphatic habit of body, in persons subject to malarial cachexia, and in those of hæmophilic constitution. He gives a record of eight cases in which the slow coagulability of the blood was marked, and all were rapidly cured by the administration of from 6 to 30 gr. of calcium chloride three times a day. The cure took from three to ten days only, a most remarkable thing, for several of the cases were very bad indeed.

Insanity.—The following paragraph published some months ago in the *Canadian Journal of Medicine*, is strongly emphasized by the recent murder of poor Terriss by a criminal lunatic:—There is a great deal more insanity outside the asylum walls than there is inside. It is in the milder forms, perhaps; it is incipient, or it is incomplete, or it is merely amusing, and goes under the name of genius or eccentricity or religion or crime. That within the asylum is of the more pronounced type. A fit of mental depression is not so severe an affection as an attack of melancholia, and the power of self-control or inhibition is strong enough in most persons to prevent them from displaying their morbid delusions, and acting upon all their obsessions.

Dental Devitalising Paste.—The following makes a reliable preparation:—

| | |
|---|---|
| Acid. arseniosi ... .. | ʒj. |
| Morphinæ acetatis ... ... | gr. x. |
| Ol. caryophylli ... ... | mxx. |
| Creosoti ... ... ... | q.s. ut fiat pasta. |

Carbolic Tooth Powder.—The following is given as a recipe in the *Chemist and Druggist*:—"The best basis is precipitated silica. When precipitated chalk is used the carbolic acid is slowly combined with the alkali, although it does not matter much, for 1 per cent. of the acid in a tooth-powder can really do little good as an antiseptic. An ounce of powdered soap, ½lb of the silica, with ½ dr. carbolic acid and 10 drops of otto of rose give an excellent dentifrice. Mix the ingredients well, and sift several times."

SULPHATE OF SODIUM AS A HEMOSTATIC.—In the *Revue Medicale de la Suisse Romande*, quoted by the *Dental Digest*, Reverdin contributes an interesting article upon this subject, experimental and otherwise, and concludes that small doses of sulphate of sodium (two grains every hour) are of great value in certain cases of capillary hæmorrhage for the purpose of arresting the flow of blood. He has also found this method of treatment of value for the control of graver hemorrhages. His experiments upon animals seem to show, however, that the remedy is of value only if given by the stomach or injected into the veins. Under these circumstances it distinctly increases the coagulability of the blood. On the other hand, it is a noteworthy fact that its administration subcutaneously does not produce the same result.

A HOPELESS CASE.—One of the advantages claimed for writing prescriptions in Latin is that patients can be kept in ignorance as to their contents. But the practice sometimes has an unlooked for effect, as in the following instance. An old fellow was being treated for rheumatism at a hospital. The doctor had been to see him and had written something on the tablet at the head of his bed. Naturally curious to know the prognosis, the patient managed to get a glimpse of the superscription, which was more legible than usual. Then he started groaning. The nurse came to him and asked if he felt worse. "No, ma'am, not particular; but I got ter die. The doctor have wrote it on my ticket." The nurse looked at the ticket and saw that the doctor had ordered a new medicine to be taken "ter die."

# Abstracts of British & Foreign Journals.

## PATHOLOGIC CONDITIONS OF THE PHARYNX AND CONTIGUOUS STRUCTURES DURING EARLY CHILDHOOD—PRIME FACTORS IN THE ETIOLOGY OF MAL-FORMED MAXILLÆ AND IRREGULAR TEETH, ETC.

By W. A. Mills, D.D.S., Baltimore, Md.

The physical functions of the nasal cavities are, viz. : They elevate the temperature of the inhaled air, gave it moisture and purify it, by arresting all particles of dust and other substances which it may contain. They act as resonance cavities for the voice, and are also the seat of the sense of smell. A professional experience of more than twenty-five years has taught us that any inflammatory lesions, found in children between the ages of four and twelve, which obstruct these natural conditions, are in the majority of cases, the chief agents in the causation of mal-formed jaws and the consequent abnormal alignment of the teeth. We cite the following case in our practice :

A boy, age seven years, was brought to the office to have a tooth filled, which was supposed to cause pain in the right ear and right angle of the inferior maxilla. There was almost complete obstruction of the nasal cavities, face pale, anæmic and haggard looking, features contracted and pinched at the jaws, and beneath the malar processes, giving the characteristic of a mouth-breather.

On examination we found a small cavity in a molar tooth, which in a manner, could have caused the pain. This was filled but gave no relief. The tonsils were greatly enlarged, almost meeting at the median line. Deglutition was both difficult and painful. On examining the superior maxillæ we noticed a very perceptible contraction on both sides, anterior to the first permanent molar tooth, with a decided inclination of the roof of the mouth to become elevated. We informed the patient's aunt of the state of affairs, with the assertion, that unless something heroic was done quickly, and by a rhinologist, very serious consequence would be sure to follow.

Six months later the patient returned to the office. A specialist had been consulted and he had removed some adenoid growths and was still reducing the tonsils with the galveno-cautery. We found a bright and rosy-faced boy with normal respiration, and imagine our surprise when upon examination, we found no signs of the former contraction of the jaws or rising of the arch but all outlines were normal.

This particular case demonstrated that either the enlarged and diseased tonsils, or the adenoid vegetations, or both, were the prime factors of the causation not only of the mal-formations of the maxillæ but also the oral respiration. If a correct diagnosis had not been made, and only palliative treatment been given, there is no doubt that a case of V or saddle-shaped arch would have been developed, with irregular teeth as concomitants, especially so, as the patient's parents are full-blooded Germans and have large jaws and large teeth.

The starting point in the majority of these cases has its origin in some slight irritation of the mucous membrane of the throat, especially the tonsils.

We would urge uponthe medical and dental practitioners the importance of ever being on the alert to discover the first sight of any inflammatory manifestation in the throat or nasal cavities of children as so many lesions are prone to develop along the lines of the respiratory passages without in themselves showing any very acute symptoms; and if permitted to continue without proper treatment of the disease and malformation, will, in some cases, defy all remedial agencies.

Dr. M. H. Omyer say: "It is my opinion that an imflammation of the tonsil and surrounding tissue will cause tension of the palato-plaryngeal and palato-glossus muscles; if this be so, they would naturally pull the lateral portion of the arch downward and inward; especially is this the case with children when their bones are soft and yielding."

*Ohio Dental Journal.*

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CORROSIVE ACTION OF FRUIT ACIDS.—Some kinds of food have a direct local influence on the teeth, namely, fruits. Oranges, lemons, apples, grapes and berries contain besides sugar and flavouring material, an acid, which by long continued application is capable of dissolving out the lime salts of the teeth. Citric acid, which exists in large proportions in lemon and orange juices, seems to have the strongest corrosive action on the enamel of the teeth of any of the fruit acids. Tartaric acid or the acid found in grapes comes next in order.—*Odontographic Journal.*

# THE RELATIVE EFFICIENCY OF VARIOUS ANÆSTHETICS.

Dr. Waller's experiments have convinced him that the most satisfactory way of testing the efficiency of anæsthetics is to employ freshly prepared nerves, and to cause them to respond to electrical stimuli while subjected to various narcotising vapours. The method is as beautiful as it is original. Not only is he enabled thus to investigate the anæsthesia produced, or, as he terms it, "temporary immobilisation," but to ascertain the strength of vapour which kills the nerve and produces "permanent immobilisation." Under ordinary physiological conditions the galvanometer reveals the presence of currents in the nerves. The action of narcotics is to send the nerve to sleep, and the absence of the current is proof positive of this anæsthetic sleep. Remove the vapour and the nerve recovers itself, and again the nerve currents appear. Now, by testing a number of substances, Dr. Waller has found that while all those which produce anæsthesia also bring about death of the nerve, some are far more deadly than others.

We have hitherto been assured that chloroform killed either by paralysing respiration through the nervous system, leaving the other tissues severely alone, or brought about death through circulatory failure, due, it may be, to vasomotor dilatation, or through incapacitating the heart. Now we learn that not only does chloroform destroy muscular tissue and narcotise the nerve centres through its influence on the blood, but actually attacks nerve fibrillæ, and destroys their irritability. It is a matter of indifference to "the man in the street," as Dr. Waller points out, whether he is killed through his heart failing or by asphyxia, what interests him most is how he can be saved pain with as little chance of losing his life as his surgeon can conveniently arrange. From this point of view it is somewhat startling to find that dose for dose chloroform is seven times more deadly than ether when tried upon the isolated nerve—that is, upon a highly specialised protoplasm. And what appeals most to the practical man is that these figures show how narrow a margin in the case of chloroform there is between a non-lethal and a lethal dose, while seven times that margin exists when ether is in use. The specific action of nitrous oxide has been asserted by some, but denied by Wood and Cerna, and the late Sir George Johnson. Dr. Kemp's careful study confirms the former view, but according to Dr. Waller it is an anæsthetic which has little or no action on the nervous tissue.

In the statistics of deaths under these two anæsthetics ether stands better than the proportion of 7 to 1. The proportion in its favour is about 13 to 1; but, as Dr. Waller pointed out, the problem of the action of narcotics on the whole organism, although exemplified tersely by a nerve experiment, is in itself far more complex. It is often stated that the after-effects of ether are far more fatal than those due to chloroform; but no foundation in experiment or statistics exists to prove this, and, as Dr. Waller cogently puts it, the use of chloroform, if it be dangerous under all circumstances, is, unless under exceptional circumstances, unjustifiable; and if it is only dangerous when unskilfully given, its deaths amount to homicide. This is Dr. Waller's chloroform dilemma.

The practical fact which stands out in terrible distinction is that deaths under chloroform have not lessened in spite of physiology or Hyderabad Commissions. It is useless to contend that these deaths arise because the physiologists teach dangerous tenets, since the large percentage of persons who give chloroform know little of and probably care less for physiology. It is rather the careless and the over-confident in whose hands such accidents happen, while as a rule it is safer in those of persons who have leisure and training to follow the trend of modern thought and teaching concerning anæsthetics.

*British Medical Journal.*

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# A CONTRIBUTION TO THE STUDY OF THE FRONTO-ETHMOIDAL REGION.

By J. H. Bryan, M.D., Washington, D.C.

In this short communication it is my desire only to call attention to a few of the variations from what we have been taught by the anatomist to consider the normal conditions of the fronto-ethmoidal and the fronto-maxillary regions.

Lying between the ethmoidal cells and the frontal sinus there are a series of cells known as the fronto-ethmoidal cells.

which properly belong neither to the frontal nor the ethmoidal cavities, but play a very important *role* when either of these sinuses is the seat of a prolonged suppurative inflammation; for in nearly all such cases they are to a greater or lesser degree affected, thereby rendering prognosis of these conditions very uncertain.

These cells vary in number from four to seven on either side, and in the preparations I have examined I have been unable to find any communication between them and the frontal or ethmoidal cavities proper.

The anterior cells are occasionally found unusually developed, projected into the frontal sinus to such a degree as to diminish the size of that cavity considerably. In some frozen sections I have recently made this projecting anterior fronto-ethmoidal cell is well shown. Dr. Cryer, of Philadelphia, exhibited at the last meeting of the American Medical Association some interesting sections in which the same condition was more marked than in my preparation. It will be readily seen that in treating chronic empyema of the frontal sinus we must not limit our investigations simply to that cavity, but endeavour to ascertain the condition of these cells also; for if affected, and they generally are, they will be the starting point for a reinfection of the sinus after the inflammation has apparently subsided.

In all cases of chronic frontal sinusitis of long standing the frontal ethmoidal cells should be opened with a sharp spoon, and the frontal sinus made to communicate freely with the nasal cavity, thereby insuring a free and permanent drainage.

The relation of the maxillary sinus to the cavities above is most important, for while it is frequently affected independently of the frontal and ethmoidal sinuses, abscess of this cavity is occasionally, nevertheless, a secondary process to either an ethmoiditis or a frontal sinusitis resulting either from a direct extension of the inflammatory process, or acting as a reservoir, and receiving the septic secretions as they pass through channels between the ethmoidal and maxillary, or the frontal and maxillary cavities. These communications are frequently pathological as Zuckerkandl has demonstrated, but there are passages which exist normally, especially between the frontal and maxillary sinuses. In a paper read before the American Laryngological Association in 1895, I described a preparation in the Army Medical Museum at Washington, in which the frontal sinus communicates directly with the antrum by means of a groove found just i advance of the hiatus semilunaris. Secretions from the frontal sinus in this case would find their way into the antrum in preference to the middle meatus.

MacDonald states that Dr. Curnow, of King's College has observed this condition also, while the late Professor Leidy observed it in two or three instances. This has been considered a rare variation from what we have been taught to consider the normal position of the infundibulum. Recently Dr. Fillibrown, of Boston, has made some investigations of this subject, and finds that the infundibulum, instead of terminating in the middle meatus, continues as a half tube which terminates directly in the foramen of the maxillary sinus. In seven heads examined there was a fold of membrane which served as a continuation of the unciform process, thus forming a pocket which would effectually prevent any frontal sinus secretion from passing into the middle meatus until the antrum was full to overflowing. In a private communication he states that he examined fifteen more more specimens and found the infundibulum as above described in all but two ; in one the pocket was full of bony formation ; from this it would seem to be a frequent anomaly. If it occurs as often as this, it suggest a ready explanation why so many cases of chronic maxillary abscess resist treatment to such an extent. It is a subject that should be still further investigated and if this position of the infundibulum should be established, I believe the source of a great deal of maxillary disease will be found in the fronto-ethmoidal region. the secretions passing from one or both cavities into the antrum. A brief reference to two cases which have been previously reported may serve to emphasise the importance of looking beyond the maxillary sinus for the source of the suppurative process so frequently found in that cavity.

Case I was that of a man operated upon by me eight years ago for an abscess of the antrum. At that time the ethmoidal cells were supposed to be affected also, but this could not be positively established. Since then he has been under almost continuous treatment at the hands of various specialists, and what treatment he could give himself for a supposed obstinate suppurative inflammation of the antrum. After an interval of over seven years the patient came under my observation again. Upon examination the antrum was found full pus, which he was able to wash out himself through a permanent alveolar opening. A rhinoscopic examination revealed extensive caries of the anterior ethmoidal cells, and a large communication with the frontal sinus, through which a probe would be readily passed. All irritating applications to the antrum were prohibited, and the treatment was directed to the removal of the carious ethmoidal cells, which was done by means of a sharp spoon. After an interval of eight weeks the antrum was practically free from pus, the slight secretion that continued to form passing readily out of the nose.

Case II was that of a woman who came under my observation several years ago, suffering from an abscess in the frontal, ethmoidal, and maxillary cavities. The antrum was opened through the alveolar ridge, and the frontal sinus at the inner angle of the orbit. In the course of the treatment solutions injected into the antrum found their way out through the frontal sinus opening, thus showing there was a direct communication between the two cavities.

In Case II the antrum was probably infected secondarily from the frontal sinus, as there was an absence of dental caries and intranasal disturbances, which would have been apt to lead to a primary maxillary inflammation. In Case I the communication was probably of a pathological origin; but it is cited here to show that the source of the maxillary secretion was from the ethmoidal region, and not from the cavity itself.

I believe if a little more attention were paid to what is known as the fronto-ethmoidal region, many of the so-called incurable cases of maxillary abscess would not occur; for it is my opinion that most of the infection takes place from this point both upward into the frontal sinus and downward into the antrum. This opinion is somewhat strengthened as far as the latter cavity is concerned by the peculiar pouch-like condition of the infundibulum just described, which catches all secretions coming from above, and directs them into the maxillary sinus.

*British Medical Journal.*

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Treatment of Sweating Hands.—The *Journal de Medicine* gives the following: Take of tincture of belladonna, 1 drachm; cologne water 1 ounce. Mix. Add a little glycerin at the moment of using, and with the mixture rub the hands strongly. The hands should be first washed in soft water and thoroughly dried.

# NITROUS OXIDE ANÆSTHESIA DUE NEITHER TO THE ACTION OF NITROGEN OR TO ASPHYXIA.

Dr. Kemp of Baltimore in an interesting paper published in the *British Medical Journal*, speaks very decidedly upon the above points after a series of experiments.

Nitrous oxide was first administered and the slit for the admission of air was adjusted until the amount of air admitted sufficed to keep the animal alive and anæsthetised for a considerable time—usually about 20 minutes. With the slit in this position, the air supply thus remaining constant, the animal was made to breathe from the bag of nitrogen. Under the nitrous oxide and air the dog remained smoothly anæsthetised, even to the extent of standing the stimulation of a sensory nerve without signs of pain. When nitrogen was substituted, the amount of air remaining the same, the dog gradually came out of his anæsthesia, and became conscious, reacting readily to a slight pinch by the forceps. Stimulation of a sensory nerve under these circumstances would have been sheer cruelty, and was not attempted. As a result of these experiments, which were repeated a number of times, there seems to be no escape from the conclusion that nitrous oxide is a true anæsthetic, and that it produces anæsthesia apart from depriving the animal of oxygen, while nitrogen does not possess this property to the same degree. Indeed, as far as we are able to observe, nitrogen does not possess specific anæsthetising properties at all.

*Apropos* to this should be mentioned the classical experiments of Paul Bert with nitrous oxide under pressure. Bert provided an airtight operating room, in which the pressure could be raised at pleasure by pumping in air. The patient breathed a gas mixture of 80 per cent. nitrous oxide and 20 per cent. oxygen. The surgeon, assistants, and attendants breathed 80 per cent. nitrogen and 20 per cent. oxygen (compressed air). The amount of oxygen was the same in either case, but the patient became anæsthetised by the nitrous oxide, while the others were not affected by the nitrogen. By increasing the pressure more nitrous oxide was caused to be absorbed, and the anæsthesia was deepened. The amount of available oxygen in the system was not diminished by the pressure employed, but, in fact, was somewhat increased, so that any theory of deficient oxidation under these circumstances would be absurd.

The success of Bert with nitrous oxide under pressure and the recorded observations of certain surgeons and anæsthetists who have used the gas mixed with air or with oxygen led us to undertake a more exhaustive study of the effect of such gas mixtures on the system to determine, if possible, whether it would be safe to employ them in prolonged anæsthesia to replace chloroform and ether. The advantages of such a change are obvious, for nitrous oxide is by all odds the safest anæsthetic that can be used. Out of the hundreds of thousands of anæsthesias induced by this agent less than a dozen fatalities are recorded that can be attributed to its effects. Indeed, if we exclude the element of asphyxia—which can be almost entirely avoided by admitting air or oxygen—nitrous oxide may be said to have an absolutely clean record, for, so far as I am aware, not a single fatality has occurred under nitrous oxide and oxygen.

It is true that the anæsthesias under nitrous oxide have been as a rule of shorter duration than those in which ether or chloroform was used ; but when we consider that fatalities occur most frequently in the early stages with the latter, even in the hands of skilled anæsthetists, while nitrous oxide is constantly being administered by comparatively inexperienced persons without a medical training, the record is all the more remarkable. The anæsthesia was always tested by stimulating a sensory nerve. After the animal had breathed the gas mixture a considerable time and was deeply enough anæsthetised to stand stimulation of the sensory nerve without signs of pain the blood was drawn from the femoral and collected over mercury in a special apparatus without contact with the air, and an accurately measured amount was forced into the vacuum bulb.

Anæsthesia, deep enough to prevent pain on stimulating a sensory nerve was obtained in most instances when the blood was carrying about 8.5 per cent. oxygen, that the minimum is 7.9 per cent., and that in some cases we get perfect anæsthesia with as high a per centage of oxygen as 16.8. This latter figure is practically within the limits of the amount of oxygen normally present in the blood and precludes the supposition of asphyxia. The lowest amount of oxygen obtained, 7.9 per cent., is just about the boundary where changes of metabolism begin to be induced, but is well within the safety limit.

# DR. BLACK'S ANSWER TO A CRITICISM ON HIS METHODS OF TESTING AMALGAMS.

My attention has been called to an editorial in the October issue of the *Western Dental Journal*, entitled "Upon the Subject of Alloys," in which the writer objects to an extract from my writings, which he says has been widely circulated. It begins as follows: "I do not care how you mix your alloys for filling, provided certain rules are employed." Following this the rules are given.

This sentence taken alone might be considered careless perhaps; but in the original context it followed a discussion on the merits of mixing in the palm of the hand and mixing in a mortar—and meant simply that either method might be employed.

The editor then proceeds to extol Dr. Fletcher's plan of mixing by shaking together the mercury and alloy in a bottle. He gives, however, no exact experiments going to show that this method is either better or worse than other methods of mixing. My own records of trials of that method show: 1st, That when the movement of the mass is carefully measured during setting, the method does not control shrinkage. 2nd, That the mass so mixed makes an amalgam which flows more under a given stress than a mass made from the same alloy by other methods. 3rd, That the mass so made has less strength and will be crushed with a less number of pounds pressure upon a block of given size than a mass made from the same alloy by other methods. These are the results of careful measurements by use of the best instruments yet known for the test of the physical properties of amalgams. If the editor of the *Western Dental Journal* has tests of a truly scientific character which give different results he should state them in detail, as I have given nearly all of mine.

The editor also objects to squeezing out surplus mercury after mixing with the alloy, asserting that changes in the qualities of the mass are produced. He does not say what changes, nor does he seem to have any accurate data on the subject. I may state here that this is a subject concerning which there is nothing accurately known. The question involved is this—In the partial solution of an alloy in mercury for the formation of an amalgam, is the solution selective, or does the mercury dissolve one of several metals in preference to others of which the alloy is composed, and thus carry out in the portion removed by "squeezing out" a proportion of some single metal greater than that in which it exists in the alloy? I know of no experiments on this point that bear the stamp of accuracy.

In my own experiments as to possible changes in the qualities of the amalgam produced, I have found that when the same percentage of mercury remained in the mass a given alloy would make a stronger amalgam if so mixed that a little mercury could be squeezed out by the ordinary methods. I have supposed that this greater strength was due to the equalisation of the mercury in the several portions of the mass by the squeezing.

The question as to whether or not what I have written upon the subject of amalgams within the last few years should be considered as "incorrect and unscientific" I will leave to the profession.

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## PRACTICAL THINGS IN PRACTICE.

Trans. by Dr. B. J. Cigrand, from *Zahnaerztliches Woch.*, in *Dental Digest.*

As a covering and protection for slight wounds on the hands it has been recommended that an application of collodium and Peru Balsam (1 : 10) gives excellent results. This will remain intact and be perfect for days; and washing the hands with soap and warm water does not disturb it in the least. It is easily prepared and yields satisfactory results.

A low fusing metal, which is also very hard, can be produced as follows: 48 parts Bismuth, 13 Cadmium, and 19 Tin. This metal is useful in crown and bridge work, and fuses at about 200 F.

A compound for modelling can be made by using marble-dust and adding to it a sufficient amount of glycerin to produce a moldable material.

In the event of pulpitis or inflammation of the pulp, cleanse the cavity by using warm water and apply a small amount of pulverized thymol over the pulp. If the paln still continues, add one drop of chloroform to the applied drug and immediate relief will be afforded.

There is yet needed a metal which will take the place of gold in the making of bases for dentures. Many have advocated aluminium, but this metal does not favour us with the desirable properties of gold. A new metal which seems to have the requisites of the royal metal, and which is less costly, has of late attracted considerable attention in Germany. It is composed of silver 3·53 ; Platinum 2·40 ; Copper 11·71. This metal is elastic and takes a most brilliant polish. It is not acted upon by the fluids of the mouth and answers the same purpose as gold. Dentists who are interested in a substitute for gold will do well to experiment with this formula.

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## TO CONTROL HÆMORRHAGE AFTER EXTRACTING.

By M. K. Langille, D.D.S., Truro, N.S.

My method for such a case is to mix ordinary dental plaster quite stiff and with a tightly rolled ball of absorbent cotton press the plaster, one *piece* after another, into the alveoli until the bleeding stops. If worked skilfully it acts like magic, and a fair trial will convince the most sceptical. I have employed this method for the last ten years, in which time I have had a number of very severe cases, but have controlled the worst I have seen in from five to ten minutes' time. The plaster requires no further attention, which is a great advantage over a plug of cotton or other material. As the wound heals the plaster is thrown off without having caused the least irritation.

*Dominion Dental ournal.*

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## CAPPING EXPOSED PULPS.

Before the Odontological Society of Western Pennsylvania, Dr. W. A. Lee, Alleghany, Pa., described his method of capping exposed or nearly exposed pulps. The ideal pulp cap should be a disinfectant, an antiseptic and antiphlogistic, and most important of all, a non-conductor of thermal changes. It should fit closely and accurately the surface to be covered, and be firm and unyielding. As a disinfectant nothing is better than pure beechwood creosote. As an antiseptic and antiphlogistic, iodoform has proved best. As a non-conductor gum copal dissolved in sulphuric ether. After removing decay and softened dentine, being careful not to wound pulp, the cavity is saturated with creosote and wiped dry, Iodoform is then introduced, followed by the copal ether varnish a little thicker than cream, dried with warm air blasts. A number of coats may be applied until the tooth is not sensitive to cold air blasts. If exposure is large apply a piece of asbestos paper to the varnish before it is dried, revarnishing over the paper. A thin paste of oxyphosphate should be applied over the cap and allowed to harden thoroughly before any filling is attempted.

*Ohio Dental Journal.*

## PRESS CUTTINGS ABOUT THE LATE DR. EVANS.

*Modern Society* says :—

There is a curious rumour afloat anent the will of the late Dr. Thomas Evans, a rumour we do not believe, but which we give publicity to because it is amusing, and after all may not be wholely incorrect. It is said that the well-known dentist has left his fortune to his native city of Philadelphia, on certain extraordinary conditions. In the first place the Quaker city is to build an Evans Museum for the due display of the curios which the testator had collected in the course of his long and eventful career. Here, we fear, a very serious difficulty will be met with. Tom Evans did not make his money so much in looking after the teeth of illustrious clients as he did in looking after their hearts, and he raked in far more shekels for curing love sickness than toothache.

If the wily Yankee has kept all the correspondence which, during the last fifty odd years, passed between himself and divers illustrious persons of both sexes relative to matters connected with Dan Cupid, the collection will be a curious one indeed, but certainly not one that so eminently respectable a city as the capital of Pennsylvania could exhibit without the very paving stones in chaste Walnut and Chestnut Streets blushing. Evans' private letters would decidedly furnish very piquant reading, and, if we are not mistaken, the legitimacy of a very illustrious individual would, in these letters, be placed in a very doubtful light, but whether even the lax laws of the United States would permit the publication—much less the exhibition—of documents so very compromising to the great ones of the earth is, we think, dubious. At all events, Philadelphia will certainly edit and tone down these most curious human documents before they are allowed to be seen by the general public.

In the second place, Philadelphia is required to erect a monument to Dr. Evans, costing *not less* than forty thousand pounds sterling, and *not more* than eighty thousand pounds, certainly, a very wide margin. Finally, there is, it is said, provision made in this extraordinary will, for a biographical study of the testator. If this rumour be correct in every detail we may congratulate Philadelphia on the report that Evans' will is to be disputed by the surviving relatives. As a matter of fact, we have reason to believe that the deceased dentist's fortune has been greatly exaggerated, and we should not be surprised to find that he has not left enough to have even half of eighty thousand pounds expended on a monument or any other tribute to his usefulness. *Nous verrons.*

## QUICKLY MADE MATRIX FOR CEMENT, AMALGAM AND GUTTA-PERCHA FILLING.

By Dr. Theo. F. Chupein, Philadelphia.

Cut a piece of thin German silver plate, such as is furnished for matrices, about one-eighth of an inch wide, or narrower, and about one-half larger than is necessary to encircle the bicuspid or molar tooth you may be about to fill. The rubber-dam having been applied, the cavity prepared, and all things ready for the insertion of the filling, pass the strip of metal around the tooth, seizing the two ends with flat-nosed pliers, and draw it up close to the tooth, in the same way as you would do if you were making a band for regulating purposes. When closely fitted remove it and heat the ends, and while hot place on one end a film of hard or adhesive wax. Now replace the band on the tooth, and by heating the noses of the flat pliers, the ends are again seized. The heat of the pliers melts the hard wax which was placed on the ends of the band matrix. The matrix is held with the pliers until the wax is thoroughly cold. When removed the matrix hugs the tooth closely, and the wax is sufficiently tenacious to hold it in place until any plastic filling may be inserted.

*Dental Off. and Lab.*

# Reports of Societies.

## STUDENTS' SOCIETY, NATIONAL DENTAL HOSPITAL.

On January 10th, 1898, the Annual Meeting of the Students' Society of the National Dental Hospital was held. The President, Dr. G. Cunningham, occupied the chair.

The Secretary, Mr. Hubert M. Griffiths, then read the minutes of the last Annual Meeting, which were adopted.

The Annual Secretarial report was then read and unanimously carried.

### SECRETARY'S REPORT.

Mr. President and Gentlemen,—The last year, during which I have held the office of Secretary to your Society, has been a successful one in all respects connected with it.

The membership has increased, I am glad to say, both in regard to Past and Present Students.

During the year we have had a Smoker and a Dance which were both successful financially and otherwise; with the balance in hand from both we were able to give a Social evening in the month of May.

The thanks of the Society are due to the Hospital authorities for the loan of the building for that night, and to Mr. Bobinsky and other friends for the excellent talent they supplied.

In July the Annual Picnic was held, and was, I believe, enjoyed by the 55 Students and friends present, the particulars of it I need not mention, as they are known to all of you. I might remark that there is a balance of 9s. 2d. in my hands from it. (Applause.)

Turning to the business side of the Society during the past year, we have had excellent papers from Dr. Maughan and Messrs. Must, Lawrence, Read, and Bennett, and we are indebted to our President for the use of the Dental Technology School in June for a Demonstration night.

This, gentlemen, concludes my report.

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The Treasurer, Mr. H. Rose, then read his report which was adopted.

The next business was the Election of Officers for the ensuing year. The following names were then put to the meeting, the gentlemen having expressed their willingness to stand.

*President*—J. W. Pare, M.D. Edin., L.D.S. Eng.
*Vice-Presidents*—G. Cunningham, M.A., D.M.D., L.D.S. Eng. T. G. Read, L.D.S.Eng., D.M.D. Harv.
*Council*—Past Students, A. B. Poundall, L.D.S.Eng. ; S. Rose, L.D.S.Eng. ; C. Mullord, L.D.S.Eng.
Present Students—V. Bobinsky, H. Rose, S. W. Bennett.
*Hon. Librarian and Curator*—W. H. Must.
*Hon. Treasurer and Secretary to the Council*—W. H. Irby.
*Hon. Secretary to the Society*—Edward Thorne.
*Auditors*—Messrs. Gudgeon and Wheeler.

Upon a ballot being taken, the above were elected unanimously.

Mr. Gudgeon then showed models of two cases.

Dr. Cunningham then delivered his lecture on Luxation, which was illustrated by slides shown on the screen, Messrs. Farmer and Must working the lantern.

After his lecture, Dr. Cunningham delivered his farewell speech as President, in the course of which he said what great pleasure it had given him to have occupied the Presidential chair during the past year, and urged the students of the Hospital to take every advantage the Society offered to discuss the subjects brought up at the meetings ; by doing which they would, besides learning points in which they were in doubt, acquire confidence in expressing themselves on a more critical occasion which would present itself in the course of their professional career. Dr. Cunningham then wished the Society every success, and was glad to know he would still be connected with the Society as one of its Vice-Presidents.

Mr. Thorne then proposed a vote of thanks to Dr. Cunningham for acting as President to the Society during the past year, and added that if appreciation was any reward, Dr. Cunningham was amply repaid for the kindly help he was always ready to give the students.

Mr. Burton seconded.

Mr. Farmer then put the vote to the meeting, which was carried unanimously.

The next meeting of the Society will be held on Monday, February 14, when Dr. Pare will give a paper illustrated by the lantern, on Extinct Types of Teeth.

# Dental News.

## A LEGAL CASE AT SYDNEY.

### No. 1 Jury Court.

Before Mr. Justice Owen and a jury of four.
Miles v. Wells.

Mr. C. G. Heydon, Q.C., and Mr. G. E. Flannery, instructed by Mr. P. J. O'Donnel, appeared for the plaintiff; and Messrs. Makinson and Plunkett, for the defendant. This was an action brought by Joseph Miles as administrator of the estate of his daughter, Mary Miles, to recover compensation for her death, caused, as he alleged, by the careless, unskilful, and negligent treatment of the deceased by the defendant, H. H. Wells, dentist. The plaintiff's case was that on March 22 last Miss Mary Miles went to Mr. Wells to have a tooth drawn, and after an examination Wells told her that an abscess had formed on the tooth and that it would be necessary for her to take an anæsthetic. This she declined to do unless she was first examined by a medical man. She subsequently saw Dr. Martin, whose report being favourable, Miss Miles, accompanied by her sister Josephine, went to defendant's establishment next day, when the operation was performed. While it was proceeding Josephine Miles remained in another room, and when she was allowed to enter the operating room she found her sister quite unconscious, and upon regaining consciousness she did not appear to recognise her sister Josephine, although she was holding her hand. On one occasion Miss Wells called defendant's attention to the fact that a quantity of offensive matter was going down Mary Miles's throat. Wells, who was standing at a table, came over and held deceased forward, but she could not expectorate and was again placed in a reclining position. Subsequently Josephine was sent home to tell her mother that Mary was all right, and between 8 and 9 o'clock Miss Wells brought Mary home in a cab, and upon her mother seeing her she said, "What has happened to you? you look as if you were dying." Miss Wells explained that it took eight or nine hours for the patient to recover from the effects of the ether, and said that she would be all right in the morning. Shortly afterwards deceased complained of pains in her side, and as she got no better Dr. Rennie was called in on April 2 and told Mrs. Miles that her daughter was suffering from an abscess on the lungs. On April 11 Miss Miles was taken to the Prince Alfred Hospital, where an operation was performed, but she sank and died on April 30, her death, according to the medical testimony, being caused by the abscess on the lung, and supervening blood poisoning, and that the abscess on the lung was in all probability caused by pus passing down the trachea from the abscess in the gums. A post mortem examination tended to show that the abscess was of recent growth, and probably not more than a few weeks old. Evidence was also given that deceased at the time of her death was 22 years old, and used to do the whole of the housework, including washing, ironing, cooking, etc.; and during the last two years she assisted her father in the evening with his tailoring business, but since her death he had to employ an assistant at £1 per week, and Mrs. Miles had also to obtain outside assistance. Damages were laid at £300. The defendant pleaded not guilty.

The evidence of the plaintiff was concluded, and Mr. Pring moved for a nonsuit on the ground that there was not the slightest evidence of negligence on the part of the defendant. Of course, it was suggested that the abscess which was the primary cause of death was the introduction of pus into the lung, but the plaintiff's whole case, as far as he could understand it, appeared to be based entirely upon supposition. There was no evidence to go to the jury of any pus having got down deceased's throat into the lung, and there was no evidence of matter being under the tooth. He did not see why the defendant's reputation should be ruined by shadowy evidence of this kind. He was not to be made liable because an accident had happened or because he might have been guilty of a slight error of judgment. It must be proved that he omitted to do something which a dentist knowing his business should have done, and there was no evidence of that.

At four o'clock the further hearing was adjourned till the following day.

Upon the case being resumed,

His Honour said he had thought this matter over since the Courts adjourned, and, although the evidence was exceedingly small, he thought it was hardly a case he could withdraw from the jury. There were one or two matters that were within the province of the jury to determine, and he thought it was his duty to leave them to the jury. He did not suppose the jury would have very much difficulty in dealing with the case; but he thought he ought—at any rate formally—to leave the matter to them, and therefore he declined to nonsuit. Of course, it was quite open to the jury to say that they had heard enough evidence.

The foreman of the jury, after consultation with his colleagues, said they would rather see the case completed.

Defendant was then called, and said that when Miss Miles first came to him professionally she said that some months previously she had had a tooth broken by another dentist, who had been unable to extract. She also said that she wanted three or four other teeth drawn. On the next day the operation was performed, an anæsthetic being administered to the patient by Dr. Martin. During the operation witness cleaned the patient's mouth out about half a dozen times with cotton-wool, and he also did so after the whole of the teeth had been extracted. The patient was sitting in the operating-chair with her head reclining on her left shoulder, face downward. There was a towel on the left shoulder to catch the blood and saliva. Miss Miles became conscious two or three minutes after the teeth had been extracted, and seeing Dr. Martin packing up his ether apparatus, she asked him to wait until she paid him, but witness said it would be all right, as he would pay the doctor, and she could settle with witness afterwards. While he was at his instrument cabinet preparing a wash to rinse out the patient's mouth his mother called his attention to the fact that Miss Miles had turned her head, and that "the stuff was running down her throat." He went to the chair at once and inclined the patient's head to the left side, as it was before, and at his request she expectorated into a spittoon. When her head was inclined to the right side he noticed that matter was running down the outside of her throat, and on to her dress. Subsequently she went upstairs and rested until 7 o'clock, when she came down and said she felt all right except that she was a little stupid from the effects of the anæsthetic. She went home in a cab with witness's sister, and four days later she came to the surgery, when he examined her gums and washed the mouth out, saw that everything was clear, and sent her home. On the following Sunday he saw her at his mother's residence, when she seemed to be in good spirits, and said that she was perfectly well. She left his mother's residence about 10 o'clock, and five or ten minutes after she left, and certainly before she could reach home it commenced to rain. Witness also stated that when Miss Miles first came to him she said that she had suffered great pains from the broken tooth, with occasional swellings, and that she had had severe pains arising from an abscess. He used every care that could be used during the operation. Dr. Phillip Sydney Jones said that, having heard the evidence of the defendant, he was of opinion that he took all proper precautions during the operation.

Dr. Alexander M'Cormack, Dr. Thomas Morgan Martin, Dr. Alfred Burne, and Dr. Peach also gave evidence that there was nothing in the treatment of Miss Miles as disclosed in defendant's evidence to indicate negligence or want of care.

Rachael Wells, sister of the defendant, stated that she knew Mary Miles for some time before the operation, and they were in the habit of exchanging visits. Miss Miles frequently complained to her of being unwell. In the beginning of March before the teeth were extracted she complained of a pain in her right side and back, and on another occasion she informed witness that she had become hysterical at St. Mary's Cathedral and was very bad. She also said that she did not like to tell her people about her sick condition, as they would be rather cross with her, and that she would hear of it for months to come. She also corroborated defendant's statement as to what took place in the surgery after the operation.

It was untrue that she said to her brother, "Oh, Harry, look at the dirty stuff going down Mary's throat." In cross-examination witness said that her mother said to her brother, "Harry, put her head forward or the stuff will go down her throat," and that Miss Miles was rolling her head from side to side.

Mrs. Wells also said that Miss Miles before the operation frequently complained of pain. Some time after the operation she expressed herself as very well pleased with what had been done for her. She visited witness's house on one occasion, and after she left a very heavy shower fell. When she saw her again Miss Miles informed her that she got a little wet and had remained up till 12 o'clock.

After counsel's addresses were concluded,

His Honour, in summing up, said that the case was one to recover damages for alleged negligence, or, as it was stated in the pleadings, that the defendant did not perform the operation in a careful, skilful and proper manner. There was no case here that the defendant acted negligently in the extraction of the deceased's teeth or in any of his duties as a dentist, except the one charged by the plaintiff. The plaintiff alleged that in consequence of the defendant's carelessness and negligence, some portion of an abscess at the root of one of the patient's teeth escaped down the trachea into one of her lungs, setting up inflammation which produced an abscess, which in time led to blood-poisoning, which caused the death of the patient. The question, therefore, was, whether there was carelessness on the part of the defendant in allowing, if he did allow, any part of this matter to escape down the patient's trachea, and whether in fact the defendant omitted to do anything which a reasonably skilful medical man or dentist ought to have done in order to prevent the foreign matter from passing down the trachea while the patient was in the deep sleep of unconsciousness. Before going to the evidence he wished to refer to the law applicable to such a case as this because in some quarters one heard startling statements made as to the liability of professional men for what was known as negligence. A medical man was bound to use the utmost care that human ingenuity could devise, and he was not liable for an accident or a mere mistake. When exercising his profession he was bound to bring to the exercise of that profession a reasonable amount of skill and care. Every medical man, like any other member of the community, was liable to mistakes, but he would not be legally responible if he exercised reasonable skill and caution. That had been laid down by Lord Chief Justice Tindale and and other eminent Judges in English cases. As to the facts, the Jury were the supreme judges of the facts ; but, at the same time, their verdict must be according to the evidence. Now, the case depended to a very large extent on expert evidence and the knowledge of medical men, and men of the profession of the dentist, who were the proper persons to give evidence on the point at issue. Of course the jury were not bound to follow their evidence. They could subject their evidence to criticism as far as they could, as they would any other evidence, and if they thought any expert witness incompetent or interested or not telling the truth, or that he had broken down in cross-examination, they would discard his evidence ; but, except in such a case, where evidence was given by men of large experience and competent knowledge, they would, no doubt, give to that evidence the greatest possible weight. The medical evidence on the point at issue was unanimous ; all the medical men said that there was no sign of negligence or want of skill on the part of the defendant. Of course that was on the assumption that defendant had correctly stated what took place, and that Dr. Martin correctly bore out Wells's statement. It was open to the jury to say that they did not believe Wells, and that the opinion of the medical witnesses was given on false facts; but, assuming that what Wells said was true, they had the opinion of the medical men on the facts of the case. They might come to the conclusion that a portion of the matter went down the patient's trachea, but even if they did, they would still have to say whether it occurred through the carelessness of the defendant. His Honour then reviewed the evidence.

The jury after half-an-hour's consideration, returned a verdict for the defendant.

## SINGULAR DEATH OF A WOMAN AT BURNLEY.

### A Tooth Causes the Mischief.

An inquest on the body of Sarah Hannah Halstead, a married woman, 8, Emmett Street, Burnley, who died under somewhat singular circumstances, was recently held at the Victoria Hospital, before Mr. Coroner Robinson.

The Coroner briefly mentioned the circumstances of the case, saying that the unfortunate woman had had two teeth extracted, one of which she swallowed, whilst under the influence of gas. On regaining consciousness she had some difficulty in breathing, grew worse, and died. It was for the jury to say whether or not there had been any negligence on the part of the man who pulled the teeth.

James Halstead, compositor, husband of the deceased, said his wife was 26 years of age. She had suffered from toothache, and on the 14th ult., when he went home to dinner, he was told by her that she had had two teeth pulled by a man named Hamer, who lives in the Oxford-road. She complained of painful breathing, and in consequence of this witness went to Hamer and asked him to go and see his wife, whose condition he explained. Hamer was of opinion that the tooth had got into the stomach. When he returned home from work at night his wife had got worse during the afternoon, and Dr. Chadwick had been called in. He attended her for several days, and Dr. Mackenzie was also consulted. On the joint advice of the doctors deceased was taken to the hospital. Hamer denied having seen the tooth.

Richard Hamer, who styled himself an artificial tooth manufacturer at 147 Oxford-road, said deceased went to him on the 14th ult., at which time she was suffering from toothache, and wanted two teeth taking out. One of these was in the top jaw, and the other in the lower one. Witness had pulled teeth for deceased previously. On that occasion she asked to be "gassed," and despite his advice to the contrary, persisted in her request, which was acceded to. She was accordingly put under gas, and the upper tooth extracted without any difficulty. When he applied the forceps to the tooth in the upper jaw it "shot" through the instrument right down her throat. He noticed a duskiness come over her face, and without any delay examined her throat, but he could see nothing of the tooth. There was an assistant present whilst the operation was performed. Deceased complained of a pain in her chest, yet there appeared to be no difficulty in her breathing. Witness had pulled thousands of teeth before without ever having an accident. It was no unusual thing for teeth to fly out of the forceps.

A Juryman: Did you notice any disease about the root of the tooth?—Witness: I had not the privilege of seeing the tooth.

The one that you drew?—That was all right. Yesterday I heard that the tooth which deceased swallowed was only a one-fanged one, which accounted for its slipping out of the forceps.

Was there anything about the gum which showed that the missing tooth was in any way poisonous?—I examined the top of the mouth, but there were no signs of anything.

Is there not occasionally something poisonous about some teeth?—Yes.

Was your assistant a practised dentist?—No, only a learner.

The Coroner: You are not on the "Dentists' Register?"—No.

A Juror: You drew the tooth?—Yes.

Have you been up for not being a practised dentist?—Yes.

And your assistant was not a practised dentist?—No.

He did not understand the nature of "gassing" people?—No. He had nothing to do with the gas. He stood there simply as a second person.

To fetch assistance if required?—Yes.

Dr. Warrack, house surgeon at the hospital, stated that deceased was taken to that institution on the 18th ult. She was suffering from fits of coughing, was short of breath, and her complexion was rather livid. He examined her lungs, the right one of which was quite healthy, whilst in the left lung there appeared to be a total obstruction. There was no air entering the left lung. From a photograph which was taken by means of the Rontgen rays it was evident that the obstruction was not in the trachea, and therefore must have been situated below the main bronchus. Deceased was in a very feverish condition all along, and died from gangrene of the lungs, attributable to the obstruction. A post mortem examination was made, and two inches below the lower end of the windpipe, in the left bronchus, witness found the tooth, which was wedged quite tightly into the bronchus. It was like a ball-valve, and obstructed the air passage altogether. He examined deceased's mouth, and noticed the cavities in the upper and lower jaws from which the teeth had been taken. He reinserted the tooth in the cavity of the upper jaw, finding that it fitted. It projected only slightly from the gum, the direction of the tooth being very much forward and inwards. It had a distinct inclination inwards, and was situated the farthest back.

In reply to a juryman the doctor said he had seen dentists stop patients' teeth from going down their throats, yet it was quite possible for them to slip. He thought that one a pure accident; still one should be cautious about letting a tooth slip into the throat.

A Juror: You could not locate the tooth by means of the photograph?—Not on account of the gangrene of the lung, which made it very opaque. The photograph indicated that it was not in the trachea at all.

Could nothing be put in the patients' mouth lest there should be a danger of the tooth flying out and being swallowed?—Dr. Warrack and the Coroner: No, that would suffocate the patient.

The Coroner said if the jury were satisfied that Hamer had taken reasonable care in extracting the tooth, they could say it was an accident, but if they thought there was any gross carelessness on his part it would mean manslaughter. From what the doctor had told them it might happen to anybody. There was always a danger of the tooth slipping, and and it was the duty of a dentist to guard against it as well as he could. But it was absolutely impossible to guard against it, because if they put anything behind the patient's mouth it would block up the throat, and they would have the patient suffocated before they got the tooth out, and that would be the worst thing of the two.

The jury were unanimously of opinion that it was a pure accident, and returned a verdict accordingly.

*Burnley Express.*

## PECULIAR DEATH OF A WOMAN.

Miss Elizabeth Louisa Knight, aged 27, died in a private hospital at South-terrace, Adelaide, under most peculiar circumstances. About a month ago she went to a prominent dentist to have a tooth drawn, and the tooth, upon being pulled out, slipped down the windpipe, and became embedded in one of her lungs, causing an abscess to form. An unsuccessful attempt was made to find the place where the tooth had lodged, and death resulted from the abscess. The inquest was adjourned to allow of the presence of the dentist, who is at present in Melbourne.

*Sydney Daily Telegraph.*

## FATALITIES FROM NEURALGIA.

These are on the increase and form a deplorable testimony to the havoc being wrought among us by dental caries.

At Wolverhampton on January 10th, an inquest was held as to the death of Alfred Titley (43), locksmith, Church street, Wolverhampton. While in bed on Friday night, Titley awoke the whole house-hold by throwing a looking-glass against the dressing-table, and threatened that he would kill his parents before the morning. He had been suffering from neuralgia for several weeks, and on Saturday morning, after coming down to breakfast he half severed his head from his body with a recently-ground carving knife. The jury returned a verdict that "The deceased committed suicide while in a state of temporary insanity."

*Birmingham Daily Argus.*

An Overdose of Chloral. — On January 11th, Mr. Alfred Hodgkinson, Coroner, held an inquiry at Tottenham respecting the death of Henry Herman Hempleman, 32, a clerk, lately residing at Stamford Hill. Mrs. Caroline Hempleman stated that her son enjoyed very good health, but was subject to frequent attacks of toothache. On Tuesday last, he complained that one of his teeth ached terribly, and he could hardly bear it. He was in the habit of taking laudanum to allay the pain. On Thursday afternoon he returned home from business earlier than usual, saying that his toothache was unbearable, and he did not know what he should do. He said he would go and lie down on the bed for a short time, but a few minutes later, on witness going upstairs, she found him lying unconscious on the landing. A doctor was called, but her son never regained sensibility, and died at ten o'clock the same night. Dr. Henry Stranger, 134, St. Ann's road, deposed that he was called, and fonnd the young man insensible, and smelling strongly of chloral. The autopsy showed the presence of a large quantity of chloral, and death was due to heart failure, the result of an overdose of chloral. The Jury returned a verdict of death by misadventure.

## ACTION BY AN UNREGISTERED MAN.

At the County Court, Charles Griffith, dentist surgeon, of Canterbury, sued Thomas Spearpoint, for £8 10s., being the amount due in respect of artificial teeth supplied to defendant's wife and daughter. The work was done by Mr. Frederick Griffith, a son of the plaintiff, who was not registered as a dentist, and for the defence it was contended that the teeth were not perfect fitting and eventually a new set had to be made by another dental surgeon. Judge Selfe said on the question on law the evidence went to show that the work was done practically by an unqualified man, and therefore plaintiff could not recover on that ground. Apart from that the evidence showed that the work done was practically useless, and there would therefore be judgment for the defendant with costs.

*Kentish Express.*

## APPOINTMENT.

Harold J. Pickering, L.D.S. Eng., has been appointed Assistant Dental Surgeon to York Dispensary.

## THE LATE DR. EVANS'S WILL.

### HE ORDERS A £40,000 STATUE OF HIMSELF.

Reuter's correspondent in Paris telegraphs: The "Figaro" learns that the will of the late Dr. Evans leaves only an insignificant sum to the direct heirs, but that, on the other hand, a sum of nearly 20,000,000 frs. is bequeathed to the deceased's native city, Philadelphia, contingent on certain conditions of a somewhat original character being fulfilled. For instance (says the journal), the city of Philadelphia must construct a museum which will bear the name of the Evans Museum, and in which the medals, decorations, and other insignia of the deceased, and also his clothes, will be carefully arranged and catalogued. The city must also erect on a public square a statue of Dr. Evans, the price of which must not be less than a million francs and must not exceed two millions. "It will be seen," remarks the "Figaro," "that the celebrated doctor was bent on having a beautiful monument."

## Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

*To the Editor of the "British Journal of Dental Science."*

Dear Sir,—Allow me to point out a mistake which has been made in the January 15th number of the Journal, in your article dealing with the dental appointment at the Kensington and Chelsea District Schools at Banstead. This is not an entirely new creation, but dates from 1895, being held by myself from that time, and recently rendered vacant by my resignation.

Your other remarks, however, are quite accurate, for subsequent to my retirement, the Board of Guardians decided to offer the post to their Medical Officer at the Schools, who held no dental qualification whatever. This proposal required the sanction of the Local Government Board, which, however, was refused; the possession of a *dental* qualification being considered a *sine qua non.*

Seeing that the dental operations at these schools include filling and regulating, such ruling is obviously essential.

Faithfully yours,

LOUIS MAITLAND.

1, Earls Court Square, S.W.

*To the Editor of the "British Journal of Dental Science."*

December 30, 1897.

Sir,—I enclose you a leaf torn from the Durham Equitable Co-Operative and Industrial Societies Catalogue; which I enclose for your inspection It contains the following announcement: "We have made arrangements with Mr. W. Cowden, of South Shields, to do all classes of Dental Work, if preferable at their own homes. By informing the Travellers or Secretary immediate attention will be given."

Mr. W. Cowden is not (I need scarcely say) on the register, nor has the Durham Equitable Co-Operative Society, so far as I can make out any special qualification entitling them to practice dentistry. In view of the alarming increase of illegal practitioners, which has taken place throughout the country in late years, would it not be better if the General Medical Council could devise some method whereby the Medical and Dental Acts could be carried out, instead of wasting their time and making themselves the laughing stock of the whole profession, by discussing such questions as "Should dentists act as midwives," or some equally ridiculous question?

Yours faithfully,
ARTHUR W. THOMSON, L.D.S. Glas.

43, Sadler Street,
Durham.

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

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# THE PULP; ITS CONDITIONS AND TREATMENT.*

By Sewill Simmons, L.D.S.

Mr. President and Gentlemen,—I owe the members of this Society an apology for again bringing before their notice a subject, which was treated in so able a manner last Session, but I think I may safely say, it is one abounding in great interest to all of us, especially to those members who are fresh to their studies.

I regret that I shall be unable to treat such a subject as this, with that satisfaction to myself that I had anticipated, as it seems to me to be more a practical one than a theoretical one.

I remember when I was a student at this hospital, I used to buoy myself up with the idea that I saved all my pulp cases. Gentlemen, I laboured under a delusion, and what makes me think so is the fact that I lost many teeth when I first started practice, which I now think I could have saved.

To come to the subject of my paper I cannot find a better definition of the dental pulp than that "it comprises the soft tissues that occupy the central cavity of the crown of the tooth, and the canals in the roots to the apical foramen."

Hence the pulp is divided into two portions, a coronal portion, and a canal portion.

In a paper such as this it is unnecessary for me to enter into the Histology of the pulp, suffice it to say "that it is made up of connective tissue supporting an abundant supply of bloodvessels, nerves and cells."

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* Read before the Students' Society, Edinburgh Dental Hospital.

Unfortunately both for you and for me, the pulp is so intimately connected with the membrane surrounding the root of the tooth, that to discuss the one, without bringing to your notice the other, would be an impossibility; in fact the death of the one throws on to the other double work, or practically takes on the work of the other, just as in the same way as you all know the nutrient artery to any larger bone being cut, the membrane round that bone is sufficient to keep the bone alive.

This membrane is called the Periosteum or Periodontal membrane.

Both the pulp and periosteum have *two distinct functions*, the former has a peculiar resentment to thermal changes, that is to "cold and heat," the latter totally plays the part of the sensory function of the tooth, that is to "the touch." Bearing these two important facts in mind, we shall now be able to pass on to the differential diagnosis of the pulp.

I am sorry to say that my experience of students in this Hospital is, that when they get a patient for treatment they ignore what is, to my mind, one of the most important things to start with, and that is to obtain any information as to *symptoms*. I ask you if any doctor can diagnose a case correctly without inquiring into the symptoms of the case in hand? It is just as important, gentlemen, for you to enquire narrowly into the symptoms of your patient, as it is for the doctor to do so, and to do this before looking at the teeth.

When you are satisfied on this point, your next is to carefully inspect the mouth, and if your patient has many large cavities, enquire whether at any time these same have given pain at some earlier date.

I can assure you, gentlemen, that it is a too common occurrence to hear of people who have been to have a tooth stopped and who have suffered agonies for several days until Nature comes to their rescue in the form of an alveolar abscess, and of course the natural result is, that instead of the dentist relieving pain, he causes it.

If after a thorough inspection, and at the same time a denial of any pain, present or past, you can almost take for granted that the cavities, should there be any, have normal pulps beneath them, and in the event of any of these cavities cutting out larger than you expected, and encroaching close upon the pulp, then I think it quite admissible to leave a covering of decayed dentine, thoroughly disinfecting this with carbolic, afterwards thoroughly drying it by means of the electric hot air syringe, and then covering it with a thin layer either of formagen or cement. I have found the former material an excellent one in every respect, and it also acts as a very good non-conductor, in the event of your deciding to put into the cavity a metal filling.

It is an excellent practice to make a note of what you do for every patient, so that in the event of a tooth treated in this manner going wrong at some future date, you can look up your book and learn how this particular tooth was treated, and operate accordingly.

Should you be so unfortunate as to cause a traumatic exposure, the pulp usually bleeds freely, the pain is often acute, but will soon subside. If you have not the rubber dam adjusted to the tooth, do this immediately, then touch the exposure with a weak solution 20 per cent. carbolic acid ; this not only stops further bleeding, which is an important point, but acts as an instantaneous sedative.

Your next conjecture is to whether to preserve the pulp or to extirpate it.

I think the treatment you decide on should depend very much upon the surrounding dentinal tissue, if this be dense and healthy, with no phosphorant odour, then I think you would be justified in attempting to save the pulp. The only exception, as far as my experience goes, to that rule, is with the four upper bicuspids, these teeth are very difficult to cap, whether it be their position, or the fact that undoubtedly we use these teeth for masticating purposes more than any others in the head, I cannot say, but certainly I have had more failures in capping them than any others.

The capping of the pulp is usually performed in the following manner ;—

After stopping all bleeding a cap is made of ivory, quill, horn, cork, or of celluloid, (the last mentioned being particularly useful as it enables the operator to keep in view his exposure), or any other substance which will take the desired shape, large enough to cover completely the exposed nerve, and to rest on the dentine beyond it, leaving to your discretion whether any medicament should be smeared gently over the exposure before applying the cap, I have found Formagen carried on the end of an exploring probe, and placed gently on the dentine at the side of the exposure, and very carefully teased over it, an excellent medicant. Your cap is next placed in position, and then cement in a very liquid form allowed to run over it, taking care not to shift the position of your cap. Allow this to set firmly before attempting to place your filling, which in my mind should be always a white plastic filling, cautioning your patient that this is only a temporary one, and will require something more permanent in six or twelve months' time. Even gentlemen, after all the care you take over this capping, it is by no means always a success, and probably at some future sitting you will find on examination the pulp dead, with fortunately little discomfort to your patient. Still we have cases which sometimes encourage us in this treatment. I will give you an instance of this. I was operating on a young boy from the Academy in 1892, the tooth, a canine, was very sensitive, and before I knew what had happened, the pulp was seen to be bleeding, I was loath to destroy it in one so young, so followed out the treatment I have just advocated, only instead of using formagen, which had not come into use at that time, I placed a little cement mixed with oil of cloves directly over the pulp. I saw the boy two or three months ago, and replaced the temporary stopping which had been renewed from time to time with a gold filling, and found the pulp in a very excellent condition, responding quite naturally to the thermal changes which were tried.

Our next patient has been suffering pain, it is therefore necessary to question him carefully, as to the *amount*, *duration* and *character* of it.

It may be either :—

(1) Simple irritation of the pulp ;
(2) Acute inflammation ;
(3) Chronic inflammation ;
(4) Suppuration or abscess ;
(5) Degenerative changes, due to blows, irritation from a filling, or new growth in the pulp chamber (pulp stones) ;
(6) Exostosis ;
(7) Periosteal pain due to constitutional causes ;
(8) Periosteal pain due to pus in the pulp chamber.

*Simple irritation* of the pulp, such as is induced by sweet things, acids, and also thermal changes which do not last after the fluid has passed the tooth affected, are not serious, and can usually be treated by filling the tooth with some temporary material.

Inflammation of the tooth may be either acute or chronic.

In the acute form the pain is very severe, and throbbing, and is increased by going out of a warm room into the cold air, or *vice versa*.

The pain is naturally very severe on account of the situation of the pulp, which being enclosed as it were in a box, gets no chance of escape ; on touching such a pulp one finds the blood of a bright colour in the acute state, and of a dull red colour in the chronic variety.

It is also very much more severe in the young on account of the size and vascularity of the pulp, sometimes the pain is of a neuralgic kind, the most constant locality of reference is in the ear of the same side, especially when the lower molars of that side are affected, it may however, be referred to the temple, the infra-orbital foramen, the malar prominence, the angle of the lower jaw, the side of the neck, and other localities more remote. I have usually found that the neuralgic pain does not come on suddenly with the first attack of inflammation, it is usually associated with the chronic form, and, gentlemen, my experience is that most patients prefer saying that they are suffering from neuralgia, than to come out with the blunt fact that it is toothache.

One cannot be too careful in examining a mouth with the usual inflammatory symptoms, be it acute or chronic, and to tell a patient who has been suffering from pains such as I have described, that there is nothing wrong with their teeth is absurd. The cause may be hidden under some leaky filling, etc., but find it you must. A jet of cold or hot water, after isolating as far as possible the surrounding teeth, will usually find the offender, (or a heated instrument is preferred by some practitioners, as each tooth can be touched more independently with it), causing the pain of which your patient has been complaining. My next caution to you is never take your patient's word for the locality of pain, because if you do you will be often cheated, as I have been more than once in my innocent days.

It is, as you know, a common occurrence for pain to be reflected from one tooth to another, and to give you two instances which recurred forcibly to my mind when writing this paper, may be useful in warning you against this danger.

A patient, a young lady, called one evening at about my usual hour for knocking off work, complaining of symptoms such as I have described under acute inflammation. She pointed to a lower wisdom which was largely filled. I immediately tackled the tooth, expecting to find cement under the large amalgam filling, instead of which, to my great consternation I found the roots filled. I said to her, "This cannot be the tooth." "Well," she said, "the pain usually starts in this one," pointing to a lower second bicuspid of the same side, which was also extensively filled. I tapped the one indicated with a steel instrument expecting to find perhaps, some periosteal pain, in which surmise I was disappointed. I then threw a jet of cold water on to the tooth, and she immediately experienced the same paroxysms of which she complained. I drilled slap into the pulp which bled freely, and applied the usual remedy, with the result that she had immediate relief; but, gentlemen, I had to refill that back molar which I had unnecessarily reopened. Had I taken a little more care, this would not have happened, but after all, our errors teach us more than our successes. The second case was distinctly interesting, a young lady, a personal friend of my own, had been visiting off and on for two months her own dentist, she was suffering pain every night of such a character to prevent sleep, during the daytime it ceased. I questioned her in the usual way, and she was very positive that the pain was proceeding either from the first or second bicuspid, or canine of the right side, on examining these she informed me that her dentist had removed amalgam fillings from all these without any amelioration of the symptoms. I then proceeded to examine carefully that side of the mouth in the molar region. She had lost the first and second molars, but a wisdom tooth I found extensively decayed, and on narrower inspection found a fairly large exposure. I applied arsenic to this, which brought on the pain complained of in the bicuspid region, which proved to my mind that this was the cause of the whole trouble. After removing the pulp at a future sitting, I filled the tooth, and she assures me that she has never had the least tinge of toothache since. This, gentlemen, was a typical case of reflex pain, and I feel sure that had her dentist exercised a little more care in his examination there would have been no need for his removing the amalgam fillings. After such symptoms as I have described, there is to my mind only one treatment, that is to kill the nerve, and remove it at a future sitting.

(*To be continued.*)

## CASES OF EXCISION OF ROOTS.*

By Mr. H. Lloyd Williams.

F. H., a girl aged 18, came to the London Dental Hospital, October 26, 1895. The right maxillary central was chipped at the cutting edge, and the apex, with rather more than a third of the length of the root, was necrosed and projecting out of the gum. The tooth was nearly as firm as the left central. The portion of the root that was uncovered was hollow, almost like a quill. There was a history of a fall five or more years ago, followed by pain and swelling; but the appearance of the root through the gum had only been recently noticed. The state of the projecting portion showed, however, that it must have been exposed a very considerable time.

The apical portion was excised as low as possible with a pair of clean cutting-pliers, then with a finishing burr on the engine it was ground until the healthy tissue was reached. The pulp canal was opened, thoroughly cleaned and dressed with iodoform. The wound in the gum was washed with 1-40 carbolic solution and dusted with iodoform. The root canal was filled with osteo as soon as it had been rendered thoroughly aseptic. The wound in the gum gradually closed up until in January there was just a small point of bone still left uncovered. The surrounding tissues were perfectly healthy, however, and I had no anxiety about the future. It is good that I had that confidence, for the patient has never since appeared and cannot now be traced.

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* Read before the Odontological Society of Great Britain.

The second case is more interesting, though not more instructive. It occurred in my private practice. Seven years ago I treated a dead right maxillary bicuspid for a gentleman aged 25. The roots were filled with gutta percha and a large contour amalgam filling was built up. After going on happily for about four years a gum-boil appeared, and later (March, 1896) the apex of the buccal root protruded. At this time also the large amalgam failed.

The necrosed apex was excised in precisely the same manner as I have already described. The opening of the canal was closed at once and the root prepared for a crown. A Newland-Pedley crown was fixed on; the root was not collared. I was gratified three months ago (October, 1897) to find that the gum was perfectly healed, leaving a depressed whitish scar, and that the crown and root had given perfect satisfaction for eighteen months.

In the first case there certainly was not more than half the normal length of the fang left, and yet the tooth became useful and the gums healed.

There are two points in the treatment of these cases. The first, that the portion of the root that does not protrude shall be healthy, and the second, that after excision by the forceps the root be ground down until the living tissue has been reached and just passed.

# NOTES ON FIFTY CONSECUTIVE CASES OF DEVITALIZED TEETH TREATED WITH MUMMIFYING PASTE.

By Montagu F. Hopson, L.D.S. Eng.,
Assistant Dental Surgeon to Guy's Hospital.

The treatment adopted in the undermentioned cases is not original, and was undertaken chiefly with the object of gaining some practical personal experience of the method. So far the results have proved satisfactory, but the time which has elapsed is too short to express a definite opinion as to their permanency. Believing that the thorough extirpation of the dead pulp is sounder in principle and more calculated in the long run to achieve an enduring success, I shall in the future adopt the method only in those cases where the canals are difficult of access, or where to obtain free access would involve the sacrifice of a large amount of sound tooth tissue, as in some cases of buccal cavities in molars.

The formula of the paste used is:

R. Alum ust; Thymol, Glycerini, ad ʒi; Zn. oxid, q. s. Make a stiff paste.

The plan of procedure has been the same throughout. The pulp having been devitalized by the agency of Baldock's Paste, care is taken to exclude all moisture, wherever possible by the use of the rubber dam. The pulp chamber is then widely opened up by a sterilised bur, and its contents cleared away, no attempt being made to remove the portion of the pulp in the canals. The pulp chamber is washed out with a solution of corrosive sublimate in spirit grs. ii to ʒi. Enough of the mummifying paste to completely fill it, is introduced into the pulp chamber, and pressed home with a pledget of cotton wool held in the conveying forceps, as the paste is inclined to adhere to a burnisher. The whole is sealed with Harvard cement and the filling completed with material suitable to the cavity.

| | Patient | Tooth | Duration of Arsenical Treatment | Mummifying paste applied and Tooth filled | Remarks. |
|---|---|---|---|---|---|
| 1 | F. Adult | I. L. 2nd B. | 7 days | 1895<br>Dec. 3rd | No pain. Last seen Sept. 1st., 1897. |
| 2 | M. „ | I. R. 2nd M. | 3 days | „ 11th | No pain. Last seen, Dec., 1896. |
| 3 | M. „ | I. R. 2nd B. | — | 1896<br>Jan. 2nd | No pain. Last seen Dec. 29th, 1897. |
| 4 | F. „ | S. R. 1st M. | 5 days | „ 16th | No pain when filling was polished. Not seen since. |
| 5 | F. „ | S. L. 1st M. | 6 days | „ 17th | No pain. Last seen Dec. 31st, 1897. |
| 6 | F. Young | S. R. 1st M. | 8 days | Feb. 1st | No pain. Last seen July 18th, 1897. |
| 7 | „ „ | S. L. 1st M. | 8 days | „ 1st | |
| 8 | F. Adult | S. R. 2nd M. | 5 days | „ 5th | No pain. Last seen Oct. 14th, 1896. |
| 9 | F. „ | S. R. 2nd M. | 5 days | „ 10th | No pain. Last seen Jan., 1897. |
| 10 | F. „ | I. R. 2nd B. | 5 days | „ 17th | No pain. Last seen Jan., 1897. |
| 11 | F. „ | S. R. 1st M. | 5 days | „ 25th | No pain. Last seen Jan. 10th, 1898. |
| 12 | F. „ | S. L. 2nd M. | 3 days | Mar. 6th | No pain. |
| 13 | F. „ | S. L. 1st M. | 6 days | „ 11th | No pain. Last seen April 8th, 1896. |
| 14 | F. „ | S. R. 2nd M. | 4 days | „ 12th | No pain. Last seen May 9th, 1896. |
| 15 | F. „ | S. R. 2nd M. | 5 days | „ 31st | No pain, when filling was polished, April 8th, 1896. |

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|---|---|---|---|---|---|
| 16 | M. ,, | I. R. 1st M. | 9 days | April 10th | No pain. On Nov. 28, 1896, a new filling was inserted, as inner wall of cavity had broken down. The pulp was removed, and found to be shrivelled and tough. A screw post was fixed in posterior root. |
| 17 | M. ,, | S. L. 2nd B. | 10 days | ,, 13th | No pain. Last seen Jan. 1898. |
| 18 | F. ,, | I. R. 2nd B. | 2 days | ,, 13th | No pain. Last seen Sept. 1st, 1897. |
| 19 | F. ,, | I. R. 2nd M. | 7 days | ,, 20th | Remained quiet until June 4, 1897, when it became periostitic, during an attack of influenza, but quickly recovered under Iodine applications. |
| 20 | F. Young | S. R. 2nd M. | 7 days | ,, 23rd | No pain. |
| 21 | F. ,, | S. L. 1st M. | 5 days | ,, 23rd | No pain. |
| 22 | F. Adult | S. L. 3rd M. | 4 days | May 11th | Not seen since. |
| 23 | F. ,, | I. R. 2nd B. | 7 days | ,, 27th | No pain. Last seen March 3rd, 1897. |
| 24 | F. Young | I. L. 1st M. | 4 days | June 4th | No pain. |
| 25 | F. Adult | S. L. 2nd M. | 7 days | ,, 9th | No pain. Last seen Dec. 28th, 1897. |
| 26 | F. ,, | S. L. 2nd M. | 10 days | ,, 10th | Not seen since. |
| 27 | F. ,, | I. L. 2nd M. | 14 days | July 9th | No pain. Last seen Nov. 2nd, 1896. |
| 28 | M. ,, | S. R. 1st M. | 5 days | ,, 9th | No pain. Last seen Oct. 20th, 1896. |
| 29 | F. ,, | I. L. 2nd M. | 6 days | ,, 10th | Some periostitis next day, which subsided under Iodine application. |
| 30 | F. ,, | I. R. 2nd M. | 6 days | ,, 17th | No pain. Last seen Dec., 1897. |
| 31 | M. Young | I. L. Ist M. | 4 days | ,, 21st | No pain. Last seen July, 1897. |
| 32 | M. Adult, | I. L. 2nd M. | From Aug 10th to Sept. 21. | Sept. 21st | No pain. Last seen Jan., 1887. |

| | | | | | |
|---|---|---|---|---|---|
| 33 | M. ,, | I. R. 2nd M. | 4 days | Oct. 18th | No pain. Last seen April, 1897. |
| 34 | F. Young | I. L. 1st M. | 5 days | ,, 8th | No pain. Last seen Jan. 21st, 1898. |
| 35 | F. Adult | I. R. 2nd M. | 6 days | Nov. 2nd | No pain. |
| 36 | M. ,, | S. L. 1st M. | 14 days | 1897<br>Jan. 4th | No pain. Last seen Dec. 30th, 1897. |
| 37 | M. Young | I. L. 1st M. | 4 days | ,, 7th | No pain. Last seen July, 1897. |
| 38 | M. Adult | I. L. 1st M. | 4 days | Feb. 15th | No pain. Last seen May 3rd, 1897. |
| 39 | M. ,, | S. L. 1st M. | 2 days | Mar. 3rd | No pain on March 10th, on which day patient left England. |
| 40 | F. ,, | I. L. 2nd M. | 2 days | ,, 10th | Some periostitis for a few days, but quite comfortable when seen on Jan 10th, 1898. |
| 41 | F. ,, | S. R. 2nd M. | 5 days | ,, 24th | No pain. Dast seen June 8rh, 1897. |
| 42 | F. ,, | S. L. 2nd M. | 4 days | April 1st | No pain. |
| 43 | M. ,, | S. R. 1st M. | 5 days | ,, 1st | Some periostitis which quickly subsided. Last seen Jan. 22nd, 1898. |
| 44 | M. ,, | S. R. 1st M. | 8 days | ,, 23rd | No pain. Last seen June 10th, 1897. |
| 45 | M. ,, | I. L. 1st M. | 7 days | May 12th | No pain that day. Not seen since. |
| 46 | F. ,, | I. L. 3rd M. | 3 days | ,, 21st | No pain. |
| 47 | F. ,, | I. L. 2nd M. | 3 weeks patient leaving town | ,, 25th | No pain. |
| 48 | F. ,, | I. L. 1st M. | 5 days | June 2nd | No pain, by July 29th, then last seen. |
| 49 | M. ,, | I. L. 2nd M. | 7 days | July 19th | No pain. Last seen Dec., 1897. |
| 50 | F. ,, | S. R. 1st M. | 6 days | Sept. 25th | No pain. Patient left England in Jan. |

British Journal of Dental Science.

LONDON, FEBRUARY 15, 1898.

## DENTISTRY FOR THE DENTISTS.

At a Dental Dinner recently held, Mr. VICTOR HORSLEY, who was the principal guest of the evening, made a remarkable speech, and one full of encouragement to all of us who desire to see unqualified practice dealt with in a summary manner in our Courts of Justice. When Mr. Horsley was elected on the General Medical Council by the majority of votes of his fellow-practitioners, we congratulated both him and ourselves on his success. Although he might well plead that his work as a surgeon and a scientist ought to relieve him from political duties, he has always taken a keen interest in the welfare of his profession as it affects the rank and file of practitioners. And furthermore his sympathies extend to all those in our branch of surgery who are striving against unfair competition by the advertiser and the unqualified quack. That he has lost no time in defending our rights was shown a month ago in these pages in an article which proved that it was mainly owing to his spirited action on the Council that an unwarrantable and well-planned attack on the provisions of the Dentists' Act was parried, and we hope by this time is rendered harmless. Mr. Horsley pointed out the present "grim humour" of the situation, namely, that Mr. Muir Mackenzie (who is responsible for the advice to the Executive Committee of the Council that the name of a certain unregistered man should be placed on the Dentists' Register) has been ordered "to describe the qualifications of a gentleman who has no qualifications." So far he does not seem to have been able to perform the impossible.

But Mr. Horsley has gone further. He boldly states that up to the present time there has been an oversight in the interpretation of both the Medical and Dental Acts, which interpretation, if it can be upheld in the Courts, will be of inestimable value to us and will provide us with a weapon which can play havoc in the ranks of unqualified practitioners without resorting to any amendment of the Acts. His interpretation is as follows. Section five of the Dentists' Act commences thus—"A person registered under this Act shall be entitled to practise dentistry"; this is our privilege as a class, namely the right to practise our profession. There is nothing in the Act saying that anyone else is entitled to this privilege, and the only other Act which deals with this subject is the Apothecaries' Act, which confers such privileges. Therefore if it is a common law right that anybody can practise dentistry (whether they call themselves dentists or not) where does the privilege come in? If we are granted a privilege to practise by law (and no one can question that we are) then it is only reasonable to infer that our privilege to practise must be defended by the law or our privilege ceases to exist. It is our "privilege to practise" not simply our "title" which we really wish to have protected, and this interpretation if upheld by the Courts would guard our privileges not only against those individuals who evade the Dentists' Act but also against those who infringe it by means of so-called "Companies." Mr. Horsley intends shortly to publish a paper giving what he believes to be the true legal aspect of the case and furthermore a well-selected test case will be tried before a magistrate, and if necessary, will be carried through the Courts in order to have it thoroughly proved how far this reading of the Acts is the legal one. That it is the just one there can be no question.

Mr. Horsley is also heart and soul with us in our natural desire to have a dental representative on the General Medical Council, and he intimates that if we do not obtain the next Crown vacancy it will be our own fault. "Nothing," he says, "can be obtained without asking and working."

Unless we show that we mean to succeed we shall not be taken seriously, and we shall fail. We can all do something in this matter. We can speak to our brother practitioners, many of whom do not know, or perhaps do not care, for the importance of the stake at issue. We should strive to educate them to support any concerted action for the good of the profession, as it is only by union that we shall be strong enough to carry our point. We all are brought more or less into contact with our medical brethren, most of whom can be brought to sympathise with our legitimate aims and aspirations ; and lastly, we have frequent opportunities of instructing the public who are our patients, that it is for their good no less than ours, remembering that no beneficial legislation can take place until public opinion calls for it.

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EFFECTS OF TOO HIGH TEMPERATURE IN VULCANISING.—Dr. C. A. Allen in the *Cosmos*, enumerates the defects to be expected if rubber be vulcanised above the temperature of 300 deg. F. They are as follows : destruction, increasing proportionately with temperature elevation and loss of elasticity ; extreme contraction, resulting in the plate having no membranous contact across the posterior part ; broken or cracked sections, or "slivered" at joints ; sponginess of vulcanite at the thickest portions which may be manifest over a considerable surface, or may be only at some points in size and shape quite like a split pea. The remedy for all this is to be obtained by maintaining a temperature within the vulcanising pot throughout the entire period which shall not exceed 300 deg. F.

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A LOW FUSIBLE METAL.—

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|---|---|
| Bismuth | 48 parts. |
| Cadmium | 13 parts. |
| Tin | 19 parts. |

This melts below the boiling point of water and is very hard. It melts at so low a temperature that it can be packed with the fingers. A common plaster impression can be poured at once without waiting for it to dry.

A COTTON EXCHANGE.—The use of cotton wool as a separator or a temporary dressing is often most useful, and has the sanction of long usage, but that its employment can be overdone is evident from the following tale. A lady on her way down town was met by a friend, who asked her if she was going shopping. She replied that she was not, but was going to her dentist's. "They call it his dental surgery," she said, "but I think it is more like a cotton exchange, as I have been going there every few days for the past three weeks, and accomplished nothing but to exchange the piece of cotton between my teeth for a fresh piece."

IS IT A SOUND INVESTMENT?—For quick soldering, wrap the tooth to be soldered well with asbestos cloth, cutting out the wrapping just where the solder is to flow. Make a pit in the soldering block, into which place the wrapped tooth and pack asbestos fibre around it. This investment is said to be as efficient and safe as one of plaster and sand.

THE TEETH OF CRIMINALS.—On several occasions we have given instances of the detection of offenders by their teeth. and now the police of Chicago are looking for three burglars whose teeth imprints will fit three wads of chewing-gum which were discovered on the dining-table of a house which had been broken into by thieves. At the Stockport Petty Sessions in 1839 similar evidence to this was the means of proving the guilt of a prisoner. Two men, named Partington and Hurst, were charged with a burglary in the house of Mr. Rostron Lingard, of Stockport, the principal evidence against Hurst, who was a soldier on furlough, being the mark of his teeth in a pot of butter! A perfect set of teeth will soon be an essential possession to one who wishes to succeed in the burglar's art.

TEETH LEFT IN CABS.—According to the *Westminster Gazette*, no less than 38,025 articles were found in cabs, etc., in London last year, and as many as 2,955 people left their purses and money behind them during that period. How anyone could leave his watch behind him is somewhat puzzling, but 206 people achieved this feat. Bags containing valuables numbered 2,595, whilst among other "unconsidered trifles" were 811 opera and field glasses, and 257 rugs. There is food for much thought in the fact that one seems more liable to forget an umbrella than a walking-stick, for the walking-sticks only totted up a beggarly 816, whilst the umbrellas reached the handsome total of 17,020. But imagine people leaving behind them their false teeth! Had they wished to dispose of them they might have left them at the dentist's, or thrown them over one of the bridges, or pawned them; and as they did none of these things, one can only marvel at the forgetfulness shown in leaving them in cabs. In addition to these smaller articles the forgetfulness of such things as bicycles and perambulators reminds us of the North countryman who returning from a brass-band competition was asked by the collector if he had lost his railway ticket. "Lost my ticket!" he ejaculated, "Why I've lost the big drum."

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Dental Students Recreating.—The students of the National Dental Hospital have carried through their Annual Dance with all its accustomed success at the Holborn Restaurant, and a most enjoyable evening was spent.—The members of the Glasgow Dental Students' Society held their first Annual Dinner in the Bath Hotel, Glasgow, on the 29th of January. Mr. J. S. Biggs, L.D.S., presided, and was supported by Dr. D B. Marshall, Dr. Guy, Dr. Henderson, Dr. Gunn, Dr. Bowman Macleod, Edinburgh, representatives from the Edinburgh Dental Society, the Glasgow Medical College, the St. Mungo Medical Chirurgical Society, &c. After the loyal toasts had been duly pledged, a number of speeches were delivered on other toasts, in which reference was made not only to the great progress in dentistry during the past 20 years, but to the perfection which had been attained in its various branches. An enjoyable musical programme was submitted.

Patient to Dentist: "I am so much better to-day, Mr. —, I really feel as if I could bear almost anything." Dentist: "Ah, glad to hear it. Permit me to present my bill." (Patient has relapse.)

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ASSAULTING MR. GOADBY.—Mr. Kenneth W. Goadby, a dental surgeon, of 6, Holly-road, Leytonstone, just before midnight one day last month, was walking along the Leytonstone-road on his way home. He had a bag in one hand, an umbrella in the other, and was deep in thought. Suddenly he felt a heavy blow on his hat which carried it into the middle of the road. He dropped his bag and umbrella with the shock, and when he realised what had happened he called the police, who took his assailant into custody from which he was liberated on paying a fine and refunding Mr. Goadby the value of his hat. To be rudely awakened from a state of "deep thought" (perhaps on a new theory of caries, or on copper amalgam) by a drunken ruffian is not pleasant, and we congratulate Mr. Goadby on his public spirit and his new hat.

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AMENDMENT OF DENTAL LAW IN NEW ZEALAND.—An amendment of the dental law is asked for in a petition presented by Mr. James Allen on behalf of W. M. Stenhouse and S. Myers, members of the Board of Examiners of the Dental Association. The petitioners ask that legislation should be introduced providing—(1) That no dental student shall present himself for examination until he has attained the age of twenty-one, and can produce a certificate that he has passed the preliminary medical examination at the University of Otago, and (2) that he can produce a certificate of attendances at the following classes at the University, the time so spent to be reckoned as part of his apprenticeship:—Anatomy, general and practical (dissections), physiology, pathology and chemistry, including practical pharmacy and therapeutics. The petitioners assert that the enactment of the first provision is urgent and absolutely necessary. We are glad to see that New Zealand is aiming at a high standard of curriculum and examination.

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DEATH FROM CHLOROFORM IN A DENTAL OPERATION.—Again we have to chronicle another fatality in Liverpool on January 31st. At the City Coroner's Court, Mr. T. E. Sampson held an inquest into the circumstances attending the death of William Parry, aged twenty-three, an elementary school teacher, who lived at Anfield. The [deceased was a young fellow of steady habits, who was never known to suffer from heart trouble. About three weeks ago he began to complain about toothache and consulted a dentist, who told him that nineteen teeth required extracting, and advised him to undergo an operation at the hands of Dr. H. Dubourg. The operation was arranged to take place on Saturday morning at eleven o'clock. Chloroform was administered, the deceased evidently being a fit subject. When the teeth had been extracted from the lower jaw, the deceased showed signs of returning consciousness, and Dr. Dubourg administered chloroform a second time, and the deceased seemed to take it successfully. When the operation was almost completed, however, and when the deceased was in the act of rallying from the influence of the anæsthetic, he fainted, and the doctor applied artificial respiration. Dr. Thomas, of Rodney-street, and Dr. Pitt Taylor were sent for, and on their arrival every effort was put forward to resuscitate the patient, but without avail, and death ensued shortly after. Dr. Dubourg gave the cause ot death as syncope, due to shock after the operation and the administration of chloroform. Dr. Dubourg added that this was the first out of some four hundred similar operations which he had conducted where the consequences had proved fatal.—The jury returned a verdict of death from misadventure. We think that in view of the tremendous fatality from these operations under chloroform, the time will come in which the verdict in such a case will be one of "Homicide."

"SCIENCE SIFTINGS" AND DENTAL RISKS.—*Science Siftings* which is largely read by the lay public, in a little article on "dental risks," places death from chloroform in the first place, and we are glad to see our contemporary warning the public against submitting to this dangerous anæsthetic for dental operations.

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BRIGHTON DENTAL HOSPITAL.—This Hospital has had its Annual meeting, and shows a satisfactory record of work done. A synopsis of this work pointed not only to an increase in the number of working men seeking the benefits of the Institution, but to a greater number of children, which was particularly gratifying. The total number of cases in 1897 was 3,495, an increase of only three when compared with the number—3,492—admitted in the previous year, the number of males showing a small decrease; but with regard to patients under 14 years of age, the increase was exactly 50, the number of children admitted being 1,177 out of the gross total of 3,495. In the operation of filling there was an increase of 13, the total number being 209; while the number of extractions amounted to 4,991, being no less than an increase of 1,081 over those of 1196; and as 1,370 of the gross total were extracted under the influence of gas, of which there were 592 administrations being an increase of 66, it was fair to presume that work had been performed at the Institution which ought not to be submitted to it. In other words, patients had been prepared at the expense of the Hospital for mechanical work performed by cheap practitioners. This increase of 66 gas cases with an increase of only three patients touched a matter requiring serious consideration. Many patients presenting cards of recommendation had almost demanded the administration of an anesthetic, whilst a few had actually refused treatment unless it was supplied; and others had declined to contribute a trifle to the Hospital on the ground that the cards exempt them. Subssribers were, therefore, respectfully asked to exercise a little discrimination in complying with applications for recommendations, both as regarded the social position of the applicant and the extent of the operation required. With regard to the financial position of the Institution there was matter for congratulation, considering that the funds had received no assistance from a Hospital Saturday and no increase from the Hospital Sunday Fund. There was, however, a deficiency of ten pounds, which we hope will be soon wiped off.

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THE BLUE PENCIL.—A blue or red aniline pencil is a great convenience to the dentist, in either the laboratory or operating room. It serves to mark a cast for relief, or for the borders of the plates, the positions of the teeth, etc. But its greatest usefulness is found in articulating and grinding artificial teeth, crowns, fillings, etc. The surface to which a crown or filling is to be adapted is heavily marked with the pencil, and the occlusion then made. The pencil mark is transferred to the exact point to be ground off. It is quite as effective and much more convenient of application than the articulating paper sold for that purpose. Keep an aniline pencil constantly within reach when at your work, and it is surprising how often it will be found useful.

*Dental Practitioner.*

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CORNEAL ULCERATION WITH CARIOUS TEETH.—Roberge (*L'Union Medicale du Canada*, March, 1897), reports a case of corneal ulceration beginning as a conjunctivitis associated with caries of five teeth. Treatment was without avail as long as the teeth remained.

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TO REFIT RUBBER DENTURES.—Scrape or file the palatal surface of the old plate; use mixture of thin plaster and replace the plate in the mouth; close teeth tightly together with plate in place; varnish the impression as usual; flask, and pour the impression; separate the flask; remove thin coat of plaster; then roughen the plate and pack enough rubber to fill the space. *Dominion.*

# Abstracts of British & Foreign Journals.

## AN INEXPENSIVE CROWN.

### Dr. S. E. Davenport.

Dr. J. N. Davenport, of Northampton, Massachusetts, makes what he calls the "poor man's crown." I suppose he means by that a crown constructed of inexpensive materials and requiring comparatively little of the operator's time to prepare it for insertion. The materials of which the finished crown is composed are an ordinary plain rubber tooth, German silver wire hammered into any shape that the opening in the root requires, and the ordinary vulcanizing rubber of any colour desired. The root canal being first prepared, a plain rubber tooth is selected and ground to the gum. The end of the root is ground fairly smooth, but one peculiarity about the method is that, if the palatine or lingual portion of the root stands rather high and is fairly strong, it is not necessary to cut it to the gum, as for most other methods, it being possible to make the crown conform to any irregularity of the root. A piece of German silver wire, of suitable size, is hammered on the anvil to the proper shape, and fitted to the root-canal. The hammering gives additional stiffness, and makes the wire so rigid that there is no possibility of bending it with the ordinary force which comes upon a crown. One end of the German silver is then made jagged with the file and passed between the pins of the tooth, which are bent to hold it. Red, pink, or white vulcanizing rubber in small pieces is now packed on the pins and over the wire with a warm instrument, and in sufficient quantity to form a shoulder which will cover the end of the root. This unfinished affair is then put into place, the pin going to its full extent into the root canal, and the porcelain pressed to its proper position. Before it it put into place it is held over the spirit lamp to soften the surface of the rubber, and the moistened thumb and finger will form the rubber by pressure accurately to the end of the root. It can be taken out, the surplus of soft rubber trimmed off, and put back again, half a dozen times, if necessary, within a few minutes, till everything seems right, when it is finally removed, invested in plaster in the flask, vulcanized, and finished. There are many ideas which can be applied to this method. It has been suggested by Dr. Davenport that wax instead of rubber could be used for the first fitting, particularly when two or three root-pins were to be used, and after everything was adjusted the waxed crown could be placed in the flask, the flask opened, the wax taken out, and rubber packed in. Then, too, bicuspids can easily be formed and made quite sightly by the use of white rubber for the inner cusp. These crowns should be secured to place by cement.

*International.*

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# FILLING QUICKLY-DECAYING TEETH.

By Dr. Bunting Colson, Charleston.

My present method of filling rapidly decaying teeth is as follows : I demand sufficient space in which to work. If the cavities are in approximal surfaces, I open by packing cotton, cork, or sometimes rubber, and then keep the teeth apart with a peg of wood until the soreness leaves. With the rubber-dam adjusted and the cavity well dried, I attack the enamel edges with a very sharp chisel or excavator, but prefer to use a small, fine cut fissure drill or bur. I cut back the enamel well before I proceed to excavate the cavity. I excavate the dentine with sharp excavators, using only hand instruments, as they are better controlled, and less painful if sharp. After as thorough an excavation as judgment will permit, we are frequently compelled to leave a small pad of decay at the bottom of the cavity for fear of exposing the pulp. Believing that the apparently normal dentine and enamel are not so healthy as they seem, of course it is not satisfactory to leave this pad of decay, which is composed of particles of brokendown dentine, micro-organisms and other septic material absorbed from the saliva ; nevertheless, we are forced to do so. To fill over it with any material without first taking necessary precautions would be fatal to the success of the permanent filling. It is the bacteria thus left within the cavity which destroy many teeth, however carefully lined and filled.

After excavating, my next step is to dry out the cavity with warm air—and I frequently do this while excavating as it reduces pain to a minimum—which should be a slow stream of air not hot, but just warm enough to drive back the serum and evaporate the contents of the tubuli to some extent. I then bathe the cavity with a drop of a caustic soda solution which is instantly sucked up by the dry tubuli. The soda penetrates the tissues of a tooth to a considerable depth, neutralizing all the acid that may be present in the tooth itself or in the pad of decay. Again drying this out and applying warm air as before, I flood the cavity with oil of cloves. Why oil of cloves? I have tried nearly all the germicides that I felt justified in experimenting with, and I find that oil of cloves is the most suitable and efficient. After absorbing out the surplus with bibulous paper I again apply warm air. Oil of cloves has the peculiar property, when heated to the point of volatility, of penetrating, and will pass deeply into the tubuli and so embalm the substance of the pad that no fermentative action can occur.

Now I return to the enamel border. Treatment of this margin is the most important of the entire process of filling this class of teeth. I employ some original instruments made of carborundum pencils ground down and pointed so that they resemble a well-sharpened lead pencil. I have these of fine grit and placed in porte polishers. With these fine points I grind my enamel well around to the full extent of the diameter of the cavity, so that there shall be no overhang to any portion near the surface. I now trim the extreme outer edge of the enamel, surrounding the cavity to the outer bevel or counter-sink, similar to that which is made in flushing a screw head in cabinet work, but at not so acute an angle. All this is done with the small carborundum points. Then I line cavity with balsam, believing that I seal within the tubuli sufficient essential oil to prevent the development of any fermentative decomposition in the pad. While the balsam is drying I polish my bevelled enamel border.

I desire to make a few remarks on polishing enamel, because the practice does not seem to be so generally appreciated as it was twenty years ago. It was formerly the common practice in the treatment of superficial decay, after removing the roughened surface, to polish the enamel carefully, and I have often been impressed with the ability of these fresh surfaces to resist the attacks of the agents of decay, which seem to prefer a roughened enamel surface. When we find decay to be general throughout a mouth. we invariably may note that the enamel surfaces are far from having that high polish which we see in a healthy mouth; therefore, I think it very essential to perfectly polish these enamel borders. I use for this purpose points of hard wood, mostly seasoned hickory and boxwood sharpened like pencils, held in the porte polisher bits. Running my engine at a rapid speed, I polish the bevelled enamel borders of my cavity until my mouth-mirror shows me that they shine and reflect light. This is not difficult nor painful, nor does it require much time, but it is very necessary to a perfect operation.

Bear in mind that I am writing of teeth in which we may expect a recurrence of decay. In such cases I ordinarily use a cement lining, especially in very young mouths to avoid the necessity of placing gold in contact with the dentine, but this must be done with judgment and depends upon the depth of the cavity. If I use cement I anchor in it several pellets of cohesive gold as a foundation, in preference to deep anchorage, but I do not fill the entire cavity with cohesive gold. When I have the cavity about two-thirds filled, I place around, as I work, little pellets of pure soft gold about No. 4, folded from four to six times. These I lay along the enamel borders, and they are held in place by the cohesive gold as it is built over them as I have all the enamel edges of the cavity overlaid by these soft gold pads beyond the bevel. I then complete the filling with cohesive gold and burnish thoroughly.

It may be asked, why not fill with soft gold entirely? The answer is that soft gold fillings to be well inserted require much pressure and malleting. The enamel of the teeth of the young is not dense enough to resist such pressure. Again, I cannot finish to a certainty to the outer edge of the bevel of the enamel with soft gold, and I also wish to restore the approximal relations of the teeth by contouring. Nevertheless, I want soft gold on the bevelled polished edges, covered by cohesive gold well burnished down, and I have no fear of bacteria destroying the teeth so polished. A few children may not have the patience or endurance to submit to this method, though rarely am I obliged to adopt any other.

My next favourite filling is gutta-percha, and I prefer the common pink base plate gutta-percha to any of the white preparations, and I use it whenever I can, where its colour does not make it objectionable. To fill teeth with gutta-percha, especially in the mouths of small children, is an art and requires as expert a hand as any gold filling, and, although it can be done much more quickly, is difficult. In the posterior teeth I always use it below the gum margin and almost invariably touch the bottom of the cavity, be it enamel, cementum or dentine, with a crystal of silver nitrate, and then insert the gutta-percha. In this manner I have saved teeth which, without the use of the silver nitrate, could not have been certainly preserved.

*Items of Interest.*

## RETAINING DECIDUOUS TEETH.

By C. L. Goddard.

Where a deciduous tooth is sound and firm in its socket, it has been my practice to allow it to remain, unless a successor has appeared, or is about to appear beside or near it. I have seen some cases where such teeth were extracted, and the expected successors failed to appear for several years, if at all. I consider a deciduous tooth which is sound and firm, as good for mastication as a permanent one. Very few of our patients can distinguish between them.

As a permanent lateral incisor is often suppressed, I should never think of extracting a deciduous lateral unless its successor had appeared, or showed by the fulness of the gum that it was sure to appear.

The rule which I often teach students in Orthodontia is, "Never extract a deciduous tooth unless it deflects its successor, or otherwise is the cause of an incurable abscess.

*Items of Interest.*

## A GOOD ENGINE CORD.

By Dr. Gaylord.

We are all aware that dealers send us with our engines very poor engine cord. That is so easily obtainable that it is within the reach of all at very little expense. The cord I have reference to is used for lacing-cord for ladies bicycles, and can be obtained at all the bicycle stores. It is nicely woven, and the expense is about one cent a yard.

*Cosmos.*

## A SALIVARY FISTULA OF THIRTY YEARS' STANDING: OPERATION: CURE.

Dr. Anthony relates the following case in the *British Medical Journal*:—

Mr. G., aged 61, native of St. Helena, consulted me in June, 1896, for what he termed "a leak in his neck." Examination revealed an opening about the size of a small pinhead situated in the inferior portion of the superior carotid triangle of the left side of the neck, and from which there was oozing a thin watery fluid. On giving him a small crystal of citric acid to suck, the flow of this fluid would markedly increase. It was evidently salivary secretion. I passed a small probe into the fistula in the direction of the parotid gland about two inches.

Over thirty years ago the patient underwent an operation for an enlargement in the neck, which he says the doctor called "a tumour"—what variety of tumour I could not elicit from the patient. After the healing of the wound, which was several months after the operation, he noticed that his neck was always wet, and that from the lower portion of the cicatrix there seemed to be an oozing of water. He had undergone treatment on several occasions without success.

I injected, hypodermically, cocaine, placing the patient in the recumbent posture (which I believe to be the only safe manner for the administration of that anæsthetic), and passed a probe well into the fistula. I then passed a curved needle, threaded with heavy silk worm gut, well under the probe and fistula, bringing it out on the other side. Removing the probe I ligated the fistula. This would be at a point about 4 c.cm. from the opening of the sinus. Reinserting the probe to the point of ligation, I cut down upon the probe, laying the fistula open, and curetting thoroughly, sutured the incision with three or four sutures.

I asked the patient to return in four days. Examination then showed no signs of suppuration, and the wound seemed well healed. On the fifth day I removed the ligature. On the eleventh day the sutures were taken out. It is now fully three months since the operation, and there are no signs of the recurrence of the fluid, and the surface is thoroughly healed.

The only points to be noted in this operation are these: The ligating of the fistula at the proximal end of the fistula, thus shutting off the flow of saliva, to allow the curetted portion of the canal to heal; and the early removal of the ligature before its cutting its way to the fistula, or causing the parts of slough. I might here add that I found the opening of Stenson's duct, and I had no difficulty in passing a probe its full length.

*British Medical Journal.*

# COMBINATION FILLINGS AND COHESIVE TIN.

By B. F. Arrington, D.D.S., Goldsboro, N.C.

The old idea, and prevalent opinion at one period, of packing all gold into cavities, from base to finish, as the best means and most scientific practice for the preservation of teeth, is rapidly vanishing, and will soon be thought of or mentioned only as an absurdity of the past in dentistry. But few men in the profession at this date, only the impractical and one-idea men, presume to contend for all gold in filling teeth; the principles of conservatism and practical common sense forbid. The spirit of true conservatism (as truth) must and will prevail and rule, and upon that basis teeth must be treated and preserved.

Many cavities can be as easily and well filled with gold, and the teeth will be as perfectly preserved in comfort and for utility, as with any other material, and under some circumstances gold is most desirable and should be given in preference. But with a large percentage of cavities gold and tin combined is better practice. Tin for base and gold for finish. Teeth will be better preserved, and there will always be a greater guarantee of comfort and satisfaction to patients. Trouble from thermal changes will but rarely if ever occur.

For many years it has been my practice to combine metals (gold and tin) in filling deep cavities, and have realised better results than could have been hoped for had I used gold exclusively.

Thirty-three years ago Dr. Wait, of Richmond, Va. (long since passed away, truly a good man in the profession, a conservator from foundation to finish, on every line and feature of practice), advised me to combine gold and tin-foil and use in rope form for filling. I accepted his advice and instructions, and for several years practised accordingly, and was satisfied and thoroughly convinced that the combination was superior to all gold for many cavities. I concluded to experiment on that line, and changed the mode of combination with strengthened evidence and increased faith in the virtues of combination of metals, and now for more than a quarter of a century have used tin for base and gold for finish, and am better pleased with the results.

I first used tin-foil, rope or pellet form, to fill cavities half or two-thirds full, then finished with gold, soft or cohesive as indicated, and selected for respective cavities cylinders, rope or pellet as judgment directed, always considering locality of cavity, character of walls, etc.

For twelve or fifteen years past I have given preference to a preparation of tin known as *cohesive* tin. It is a fibre or moss-like mass, put up in rope form, in half-ounce boxes. It works easily, and is in every respect more satisfactory than tin foil. For buccal and approximal cavities in molars and bicusps, it is preferable to gold or tin-foil, singly or combined, and as a filling for temporary teeth it has no equal. Then rightly manipulated it can be made the most perfect water-tight filling of any single or combination of metals in use.

I do not recollect that I have ever had a patient to complain of discomfort from the effect of a combination filling, or one made entirely of cohesive tin.

Tin, we all know, is more soothing and less antagonistic to dentine than any other metal, and is much less conducting in property than gold or amalgam.

At this advanced stage of dentistry, developed and developing grandly on every line, there can be no excuse for filling deep cavities with gold exclusively, and the man who does it is not truly a conservator in practice, and fails to do justice to his patrons, and unquestionably is not abreast with the progress of the profession.

The true science of dentistry does not consist in successful manipulation of gold or artistic display of the metal in the dental arch, but in effort and ability to preserve in comfort and natural appearance the teeth as best we can, and upon a basis that will admit of the greatest number of sufferers enjoying the privilege and benefits of our services. With such a foundation basis of theory and practical conservative action in practice, we can and may hope to do much for those in need of our services, and we will advance rather than retard the rising standard of our profession.

*American Dental Weekly.*

## CANCER REGIONS.

Dr. **Leon Noel** publishes in the *Revue des Maladies Cancereuses* an important work which leads him to arrive at the following interesting conclusions. Cancer regions exist close to regions enjoying an immunity. These latter are generally in dry localities, and some distance from streams. In these cancer regions one of two conditions prevail—either they are closely populated or if the houses be spread about at some distance from each other, a rivulet or stream connects them. Cancer in localities near woods is observed when the trees are much attacked by parasitic fungi.

## ON THE LABORATORY.

The first thing to be considered will be the walls and floor. The two cardinal points in this will be cleanliness and colour. For cleanliness, nothing can equal painted walls and linoleum upon the floor. In colour, our reason should govern our choice and not our taste for artistic effect. We should have as strong a light as is consistent with the effect upon the eyes. The preservation of the sight should be paramount to all else with the dentist. There is no colour that seems to be less trying upon the eyes than green. It is true that white will give the strongest light, but every school boy knows how trying a snow field is in a strong light, and how acceptare a pair of coloured glasses. We would suggest Nile green as probably the best shade. Green is a combination of the primary colours yellow and blue, and would be yellow-green or blue-green, as the one or the other predominates. Nile green is quite an even mixture of the two primary colours, the yellow slightly predominating, and quite a large amount of white pigment added, giving the peculiar whitish-green. The painted walls have the advantage that they do not so readily afford lodgment for bacteria, are easily washed, and therefore, are cleanly. The linoleum is better than the bare floor, because it is a smoother surface, and is easier kept free from dust, is softer to the feet and helps to deaden the sound. My preference is for the plain colour; it shows the effect of wear less, and a dropped article is easier found.

The next consideration will be the benches. These may be very simple or elaborate. No matter how simply they are constructed, there are some things that will cost nothing to observe, and others that would be false economy to neglect. The benches should be placed at such a height that the operator can work comfortably, either sitting or standing. For the average height man, three feet and four inches will meet this requirement. They should be about eighteen inches wide, not more than twenty-four inches. They should be one and one-half to two inches thick, of some find grained hard wood, as free from warpage as possible. Maple or birch will well answer this requirement. The most important bench is the filing bench, where all of the fine work is done. This bench should be placed in the best light possible, with the workman facing the direct light. If the means will permit, a piece of cabinet work will well repay the expense. A very desirable arrangement, is a plain, flat surface four feet long, with a tier of drawers one foot wide at both ends. Ten inches immediately under the bench of the remaining two feet can be used for drawers. This will give four drawers one foot wide by three inches deep, and two drawers two feet wide by two inches deep. One of the long drawers can be used for the gold drawer ond the other for all waste. The balance of the space will be for the knees and will be high enough to take in the stool, so that it will be out of the way when not in use. It is well to have several of the drawers lined with metal. Zinc is the most desirable metal for this purpose, it is not very expensive, does not rust, but in the presence of air and moisture it forms a slight film of oxide when the chemical action ceases. It has the valuable property of preventing the formation of rust upon steel. The colour is most excellent, being of a dull grey, it is not trying upon the eyes. It is low in the scale as a conductor of heat and electricity; the fusing point is sufficiently high to resist any temperature to which it is liable to be subjected, and is hard enough to resist undue wear. The arrangement of the gold drawer will require careful thought, there should be a suitable appliance for saving the filings and scrap, there should be convenient places for the various grades of solder, gold and platinum plate.

The plaster and moulding benches should be conveniently placed. These may not be very large, twenty-four by eighteen inches each will be large enough. It is best that these should be box covered and open like a piano. It will add much to the cleanliness and neatness if these benches are lined with zinc. Beneath these benches should be drawers for flasks, plaster, investing materials and waste plaster. The soldering and heating bench will next require our attention. This bench should be covered with slate not less than one inch thick. Slate is a non-reflector, a very poor conductor of heat, and practically indestructible. Beneath this bench should be kept the foot-bellows. I would suggest that the medium or large size will be the more profitable to procure, as with a light pressure they will work the blow-pipe and ingot moulds, and are capable of furnishing the blast for any of the gas porcelain furnaces, or the crucible furnace. It is well if a canopy and pipe leading to a chimney are placed over this bench, then a little ingenuity will arrange folding doors so that a fume closet can be formed when desired. This will be useful in refining gold by either the dry or humid process, or any work accompanied by disagreeable or dangerous odours or fumes. It will add but little to the expense to have cupboards built under this bench in which the vulcanizer, hot water pans, sterilizer, wrenches, miscellaneous tools and general supplies will have their place. The placing of the individual articles of furniture will be governed by two factors :—light, and the saving of steps while at work.

*Ohio Dental Journal.*

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## BAD WORK.

By Prof. C. N. Johnson, Chicago.

Much of the indifference manifested by the people in regard to saving the natural teeth is born of the fact, that failure has too often followed an honest attempt on their part to save them. Our profession has not lived up to the highest possibilities of the science and art of dentistry as applied to preservation of the natural teeth. Patients have their teeth filled and pay for it, only to find in a few years—sometimes in a few months—the work undone, and the last condition of that mouth worse than the first. It requires not many experiences of this kind to foster the idea that teeth cannot be saved, and that the practice of filling them is a delusion and a snare. I have heard this argument used many and many a time by people who referred to their own experience as proof. This brings us face to face with the question as to the probable permanency of fillings when properly inserted. Is it by virtue of necessity that so many fillings fail after a limited service? Must we acknowledge that with all our boasted handicraft we are able to accomplish nothing but the most temporary results in our operations? A few years ago a practitioner published a statement to prove by tabulated records, that the average duration of a gold filling was only about three years; and I very well remember a good friend of mine getting up in a meeting shortly after and claiming that he thought the estimate too high. I rebelled against such an assertion, and, to-day, I rebel more than ever, in the light of a careful study of my own records, after a continuous practice in one place of more than twelve years. If I was not thoroughly convinced, that every day of my practice I was inserting fillings that would do service for ten, fifteen, twenty years—in fact, for the future lifetime of the patient, I should feel a sense of humiliation and defeat. That this is no idle boast, and that I am not alone in the conviction, I give you the sentiments of two men of integrity in the profession, both modest and reliable, both carefully studious of their records, and each having practised in his respective locality between thirty and forty years. One of them is now dead, the other living. One said to me, when questioned on the subject, after due deliberation and a modest estimate of his work—he was, in reality, one of the most modest men I ever knew—that, "with a conservative statement, he could claim for his gold fillings an average service of at least fifteen years." That may appear astounding, and even ridiculous to those who did not know the man, and who are viewing every day the work of the average operator, but I knew him well enough to be assured of his sincerity in making the statement, and I have seen sufficient of his work to convince me that he was not over sanguine in his estimate.

The other man, in discussing this subject with me on one occasion, made the assertion that, "with the exception of those occasional cases, where there seems to be an intensely active tendency to caries, that gold fillings inserted under favourable conditions, and with a full observance of the most approved principles, will last practically a lifetime."

The chief difficulty with the average practitioner of dentistry is, that, in his daily work, he does not look carefully enough into the relation of cause and effect. He sees that a filling has failed in a tooth, but he does not stop to study the reason. He knows that, in one case a filling will do good service, where in another, with apparently equal care and similar conditions, his work seems to go for naught. His usual explanation is, that "in the one case, he is dealing with 'hard teeth,' and in the other with 'soft teeth,'" but recent investigation has proved that there is little intrinsic difference in the structure of teeth of different individuals, and that even where there is slight variation it seems to have little or no effect on the carious process. The fact is we must cease hedging ourselves behind this story of "soft teeth," and must no longer offer it as an excuse for the failure of our operation. There are other causes at work which render it more difficult to save some teeth than others—causes which require careful study, but which cannot be considered in the present paper. Incidentally, however, it may be proper to state that the question is one of immunity from caries, or susceptibility to caries, much the same as we find immunity or susceptibility in other diseases. And, while on this subject, let me pause long enough to call attention to one feature in connection with it which seems to me to be of paramount interest, and to offer us the greatest possible encouragement in the management of those especially difficult cases, where the process of decay seems so rampant as to dishearten the most persistent and painstaking operator. Clinical experience goes to prove that in most patients this intense susceptibility to caries is seldom constant. In other words, we may find in one of our young patients the teeth breaking down at an alarming rate. Decay recurs around filling in a discouraging manner, and new cavities crop out on all sides. Usually a case like this is given up as hopeless and the teeth sacrificed, but if the operator will only have the courage and patience to vigorously fight back the outbreak, he will find in nine cases out of ten, that, when least expected, there will be a change in the susceptibility, and the carious process will practically cease. I have seen this occur so often that I am no longer daunted when the worst possible case presents itself, and I am the more encouraged to go on and do the best I can for my patients, in view of the experience of an old and reliable practitioner, who recently stated to me, that in all his career he had not met a dozen cases where the carious process had been continuously persistent. We owe it to our patients to take these cases vigorously in hand and do the best for them that the most advanced teaching will permit.

But there is still another feature of this subject. I have said that the average practitioner does not study closely enough the relation of cause and effect when a filling fails. How many operators carefully consider why it is that a filling in a molar, or bicuspid, for instance, is forced out of place in a few months, when another filling anchored in precisely the same way remains secure for years? Did it ever occur to you that the force of mastication differs greatly in different individuals, and that in the one instance there was double the amount of pressure exerted on the filling to dislodge it that there was in the other? I have just stated that some individuals are able to close the jaws with a force of 300 pounds. Others, even with their natural teeth, can scarcely reach half that amount, while it has been learned that in the natural process of mastication there is the widest variation in the force exerted. Would any intelligent man expect to anchor a filling in a mouth where there was the maximum force in the same way that he would where there was the minimum force, and expect it to remain equally well? And yet dentists every day are inserting fillings without the slightest reference to the stress which is likely to come on them.

If dentists would develope definite modes of thought, and would carefully search out the causes of each failure that presents itself so as to avoid a repetition in the future, it would soon immeasurably increase their usefulness and add materially to the permanency of their operations. It would then not be long before the people would appreciate the benefits of dental science, and the hue and cry of to-day which seems to have for its watchword, "artificial teeth forever and everywhere," would give way to a proper respect for the natural organs, and would place dentistry in a more honourable light before the world.

*Dominion Journal.*

# Reports of Societies.

## ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, January 10th, 1898. Mr. John Ackery, Vice-President, in the chair.

The Secretary read the Minutes of the last meeting, which were confirmed.

Mr. W. H. Dolamore signed the Obligation Book, and was admitted a member of the Society.

The following gentlemen were proposed for membership of the Society. As resident members:—Mr. Frank Harsart, L.D.S. Eng,, Fair View, Muswell Hill, N.; Mr. William Barnabas Woodhouse, L.R.C.P. Lond., M.R.C.S. Eng., L.D.S. Eng., 1, Hanover Square, W. As a non-resident member:—Mr. Kevin E. O'Duffy, L.D.S. Edin., 85, Harcourt Street, Dublin.

The Librarian reported, in addition to the usual periodicals and exchanges, the receipt of the *Transactions of the Medical Society of London for* 1897.

### CASUAL COMMUNICATIONS.

Mr. Charles Clarke explained a system he had adopted of inserting gold fillings into mineral teeth. The teeth are cut with steel discs of various diameters, superfine carborundum powder moistened with water being used. In his early experiences some difficulty was met with in starting the gold, but that had now been overcome by a method he had adopted, for several years past, in ordinary cohesive fillings. In lieu of starting points he placed, in a suitable position, a pin-head of cement on which was laid a small piece of gold, the cement being allowed to harden before continuing with the filling. Several teeth with fillings of different shapes were exhibited to the members.

Mr. H. Lloyd Wiliams read notes on cases of Excision of Roots, published on p. 152, and on Open Bite in an Adult as follows:—

F. R. L., aged 25, a cavalry officer, consulted me, November, 1897. He was sent by my friend, Dr. Ball, with whom he was undergoing treatment for obstruction of the nasal passages.

He is a well-nourished, healthy and vigorous man, very well formed with the exception, externally, of a want of proportional growth of the cartilaginous portion of nose, to the bone. The nasal bones are prominent and well formed, rather wide perhaps; there is a slight depression to the cartilaginous, which then extends straight and fairly regular to the tip, this portion being too small in proportion to the base.

The mouth presents peculiarities other than the irregularity referred to. On the right there is no maxillary bicuspid at all: it was supposed it was extracted in a vain attempt to correct the open bite. On the left one bicuspid is missing. In the mandible on the right there is one bicuspid missing. The first molar was honeycombed, but now presents an excellent specimen of arrested decay, all the enamel, excepting on the outer aspect of two small cusps, has disappeared from the grinding surface. On the left the first molar presents a further stage, of recommencing caries; the whole of the approximal surface is rapidly softening. The second temporary molar remains, but is very loose.

A small depression about the middle of the lower central incisors, a larger near the cutting edge of laterals, and a spoilt cusp of the canine, confirm the tale of the firstmolars. The lower incisors lean inwards in a typical way, the uppers, however, instead of projecting at the cutting edge also incline inwards. The vault of the palate is unusually steep and high. The posterior external cusp of the right maxillary second molar comes in contact with the second mandibular molar, and on the left the posterior cusps of the corresponding lower tooth. A maxillary third molar on the right meets the lower gum.

As a child the patient was very weakly, and was compelled to lie for a very long period because of a spinal injury. Dr. Ball has kindly furnished me with the following account of the condition of the nasal passages. There was an angular deflection of the septum to the left side, completely blocking the left nostril. The condition of the right nostril was such that a slight catarrh would effectually obstruct that passage also. There was evidence of the previous presence of adenoids, which, though now atrophied, very probably caused great inconvenience in childhood. The patient has been particularly liable to attacks of hay fever during recent years. He is a mouth breather. During the last year he has occasionally suffered from gastric neuralgia.

The second and third maxillary molars and the mandibular second molar on the right, and on the left the second molars, were ground until the central incisors, maxillary and mandibular met; the left central and lateral in the mandible had also to be ground down.

For the left mandibular molar a gold crown was made and a saddle-back bicuspid was attached to it to fill the space made by the removal of the temporary molar. On the right the first molar had a gold crown put on it. The latter was seamless, the former was made collar and cap separately (22 c., attached by 20 c. solder).

The models of the mouth before and after treatment are shown. The present condition is: on the right the third maxillary molar meets the gum, and the second molars and first molars articulate efficiently; on the left the first and second molars in the maxilla articulate with the second and first molars and second bicuspid in the mandible, while the central incisors of the maxilla meet edge to edge the incisors and laterals in the mandible.

Mr. H. **Lloyd Williams** also referred to a case which came under his care at the West London Hospital on January 4. A girl was brought to him with a history that she had an alveolar abscess in the left maxilla. She said that she could not open her mouth; but when he induced her just to open the lips a little he found something very peculiar between the teeth and the gums. On holding the cheek back a little he found the end of a rag sticking out. He took a pair of forceps and got out quite a large piece of rag. The case was apparently an instance of "malingering."

Mr. **Schelling** mentioned that he had recently seen a case in which Mr. Tomes had sixteen years previously amputated one root of a maxillary molar with the result that the tooth was still doing good service. This treatment had been adopted as an alternative to extraction when the patient was in much pain from an abscess, and was leaving for India next day, and anxious to keep the tooth if possible.

Mr. H. **Baldwin** said the operation of excising necrosed roots seemed to be very successful in the cases in which it was indicated. On several occasions he had excised the necrosed ends of the buccal roots of molars and the tips of the roots of maxillary bicuspids in cases where sinuses existed which would not heal, and the necrosed ends were felt distinctly with the probe to be thoroughly separated from all the soft tissues. In those cases, after first trying to cure the sinuses in the ordinary way, he had excised the ends of the roots with a German screw cut fissure bur with most satisfactory results.

Mr. **William Hern** said he might mention in connection with Mr. Williams' communication that about two years ago he had brought before the Society two cases of excision of necrosed roots; one case occurred in Hospital practice and the other in private practice. In the case in private practice he excised the ends of the roots of the two central incisors. The roots were not projecting through the gum, but were in their normal position below the gum. Chronic abscesses were present in connection with both teeth. The patient came to him asking him to remove the teeth, but being a young lady, he wished to avoid that method of treatment. He tried to cure the sinuses by dressing the teeth, but he could not get them to heal. He therefore injected cocain, incised the gum, and with a small fissure burr cut off the end of the roots. The case did well, and he subsequently crowned both teeth. That happened six or seven years ago. He had seen the patient within a year and both roots were firm. With regard to the hospital case, the tooth was a central incisor and the necrosis occurred in connection with a very large cyst. He opened the cyst, and with a curved probe discovered the rough end of a root. In that case he opened the cyst again over the central incisor, came down on the root and excised it. The case did well, but he had not seen the patient lately. In cases in which the buccal roots of molars and the buccal roots of bicuspids had been found projecting through the gum, he had frequently taken a carborundum wheel or fissure burr and cut them off with advantage to the patient, as removing a focus of micro-organic growth. Knowing the tendency of roots so treated to fall a prey to absorption, he thought it interesting to record his case a success after such a lapse of time.

Mr. **Henry** briefly mentioned a case of a well-developed supernumerary incisor, which he had met with in a boy 9 years of age.

The **Secretary** announced that he had received from Mr. R. E. Woodcock a specimen of "false gemination" of two maxillary molars. He also announced the receipt, from Mr. Thomas Nash of Inverness, of a model of an epulis in a woman 65 years of age.

Dr. **Grevers** exhibited a long series of lantern slides illustrating some diseases of the maxilla and mandible.

The **Chairman** said he was sure that the slides had proved of great interest to the members, and the members would all feel grateful to Dr. Grevers for having come so far to show and explain them that evening. One point that no doubt would strike them all was the great industry that Dr. Grevers had shown in getting together such a collection.

Mr. STORER BENNETT cordially endorsed the views of the Chairman with regard to the indefatigable energy that Dr. Grevers had shown in making such a collection of photographs. He thought in the Society's museum Dr. Grevers would find quite as good specimens of alveolar abscess as any of those he had shown on the screen. Of the specimens Dr. Grevers had shown, the most interesting were those in which the antrum itself was almost entirely obliterated by the formation of new bone. That was an appearance with which he was not familiar, and which was not very often figured in the text-books. The only other criticism he would pass upon Dr. Grevers' exhibition was to say that so many specimens had been shown that it was almost impossible to carry everything away in their minds, and therefore they could not fairly criticise all that Dr. Grevers had brought before them. The exhibition had been a most gratifying, instructive and delightful one.

Dr. GREVERS briefly thanked the members for their indulgence. The specimens he had shown were those prepared for his lectures to the students in the Medical University of Amsterdam, but what he would show the students in three lectures he had given the Society in one, and, even then, he had left a number of slides at home which he would like to have shown.

The CHAIRMAN said it only remained for him to accord the thanks of the Society to Dr. Grevers for his lantern demonstration and to the contributors for tdeir casual communications. The meeting then adjourned to February 7.

## THE EDINBURGH DENTAL STUDENTS' SOCIETY.

On the evening of Monday, December 6th, the Society met in the debate "Apprenticeship versus Pupilage." Mr. J. Morris Stewart, L.D.S., the President, occupied the chair, and sixteen new names were added to the membership.

In opening the discussion, Mr. W. H. Memmuir upheld the apprenticeship system, and Mr. D. Pollock that of pupilage. Mr. W. Tweedie in a most able manner supported the leader, and Mr. C. F. Turnbull seconded Mr. Pollock.

In the remarks following, Messrs. Baxter, Cameron, Morgan, and Mr. Hume Purdie, L.D.S., spoke in favour of apprenticeship, and Messrs. Brewis, Brittan, Willson, F. Wilson, and Dr. F. Turnbull for pupilage.

The leaders in the debate having replied, a vote was taken, with the result, sixteen for apprenticeship, and ten for pupilage.

Mr. Lindsay, L.D.S., the recent president of the Society, and Mr. J. H. Gibbs, the secretary, spoke with open minds on the subject, which probably influenced several of the dozen members who did not participate in the vote.

On casual communications being called, Dr. F. Turnbull related two cases in practice. In one case the septic roots of a molar with an all-gold crown were treated by drilling into the gold instead of splitting and removing the crown. His other case, a dead pulp in an apparently sound upper lateral caused pain, which was referred to a bicuspid the root of which had been filled. The filling was removed and the tooth treated, but it was not until the lateral was opened into that the patient found relief. The patient was a healthy young man, with no history to account for the death of the pulp.

Mr. Lindsay showed three lateral incisors which had been replanted, and after varying degrees of usefulness, for periods of eighteen months to two years, were removed on account of looseness and discomfort. He also brought before the meeting a piece of alveolus including a tooth socket which had necrosed as a result of an arsenical dressing, in a patient who had neglected to return for treatment for several weeks.

The Annual Dinner committee has already been appointed, and the opinion prevails that the menu should again be of a humorous and artistic nature.

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To avoid the decay of the mesio-approximal surface of the first permanent molars, near the point of contact with the second temporary molars, it has been my practice to dress away the distal wall of the latter by means of a disk, leaving a shoulder at the neck to preserve a space between the crowns. *Dr. Register, International.*

# Dental News.

## THE MEDICAL COUNCIL AND DENTAL EDUCATION.

From the evidence of turbulence in the report of the Medical Council, the appearance of certain letters from dental practitioners, and the too hurried preparation of a petition, we see indications of a brewing storm on the question of Dental Education, which perhaps may develop into unknown possibilities. It behoves us to the more take bearings, and consider earnestly whither we are drifting, or should I say being steered

This question of Dental Education has never received that careful consideration it deserves, either by discussion between representatives of the various Schools concerned, or at our Association gatherings, with the exceptions of the writings of a few enthusiasts each with his crotchet.

Dentistry is an art, a science or a profession calling forth both high attainments in skill and knowledge, but especially the former, that with all its limitations it possesses such possibilities as to constitute it a *distinct profession*, though truly requiring many elements of Medical Science.

The Medical Council enact that four years at least shall be spent in the acquirement of knowledge to practice this vocation: although, as a matter of fact five are usually devoted, and they none too many. As we have a mechanical training. an operative, and a scientific, it demands the more care in the solution of the problem, given four or five years in which to complete the curricula studies how best to make the average man into the most *perfect dentist*, one who can practice what he professes with "credit to himself and benefit to his patients,"—and granting that knowledge is power, we must see that this student's education is one in a real sense, i.e., the development of his reasoning powers, and giving a sound basis of knowledge—even if not merely utilitarian—and that his course of study makes him as a dentist in a relative degree at least as proficient as a medico at the completion of his examinations. To that end, therefore, studies undesirable should be limited or removed, and every effort made to increase those broadening his understanding, increasing his skill or inciting him to further study. Now it cannot be denied that certain, though questionable advocacy has been given to the suggestion that students should take *medical qualifications*, as well as their dental, or like a specialist in medical science, first take medical qualifications and then develop their specialty. This is a proposition incapable of fulfilment in the time usually devoted to studies, and is a slight upon our profession ; but with persistent energy has it been urged--certain hospitals have been packed with its adherents, and yet no stronghold has it won on the aspirations of the profession as a body, (as well might you suggest that all surgeons should take a dental diploma). For five years are acknowledged even by the advocates of these views, only too short a time in which to acquire the knowledge a dentist professes to practise ; therefore, in all honesty, must at least nine years be devoted for the two professions, such a pursuit of study is both undesirable and harmful, tending rather to the development of a school of theorists, ornamental but not useful, although we have the assumption made that a man with such qualifications is the " finest" dentist, as well, and with equal reason, might it be said that he was the worst, or again, that the same might be argued to hold good with regard to the qualification of a chemist, which only shows the absurdity of such an assumption. It can, therefore, be understood why those advocates feel alarmed at the desire to " whittle down" any studies they can make the excuse of lessening the requirements of the medical qualification. But we must look to the practical good of the profession, and not advocate that only theoretical. For there is all the difference in the world between some knowledge thoroughly assimilated and a mass of knowledge but imperfectly digested, and in which the very fact of no direct bearing on his profession tends to diminish the interest of the student in its requirements, rendering the education little better than a sham, though a horrid cram, when our daily occupation from morning till night calls for manipulative dexterity, tempered by the theoretical knowledge obtained during the years of college training, and the after years of added experience.

It is these considerations that urge me, while to a degree approving of this petition, that without qualified statements the attestation would imply more than I am sure many who so hastily signed it might wish to convey. For is even much of the knowledge required either desirable in itself, or in the method of its acquisition ? I say unhesitatingly—No ! And perhaps with more justice than many care to acknowledge tends to the cultivation of those "mongrel doctors," of whom Sir Richard Thorne spoke, and with whose underlying views I must certainly confess considerable sympathy. For scientific knowledge if it is to be of any use must be accurate, and more depends upon its nature than extent, and our desire should be therefore to attain thoroughness; as a dentist is the more estimated from what he can do with his knowledge. And, instead of allowing overlapping of periods in education during this fact gathering era, which should and are supposed to be devoted solely to the subjects signed for as in that period, either as between mechanical, operative, scientific or medical; or curtailing (for the addition of other subjects considered desirable) dental subjects, let us rather *prune* our general, and this, I think, can profitably be done, not only in the limitation and better arrangement for attendance of the general Hospitals, but by insisting on special courses of lectures being given by the Profession in general Surgery and Medicine, and perhaps in General Anatomy and Physiology, which shall be confined to the enunciation of general principles and detailed consideration of the direct and indirect influences on local conditions. What does a dental student want to waste his time for considering the various stages of pneumonia, hydatids of the liver, the causes leading to the retention of the urine, or the diagnostic value of pain in the metatarso-phalangeal joint of the great toe? I only cite these to impress the useless lectures such a student has to sit and listen to by the present system, and unfortunately, too, there is a bigger farce in that most of these lectures occupy two sessions, and lucky is the man therefore who learns in his one winter session required by the Council a few subjects that may have bearing on his profession. No! Is it not possible to give these short general courses, and I would even like to see *added* one by the Professor of General Pathology, and also an elementary course of Biology, as this will give the student a greater interest when he comes to consider Dental Anatomy. Then again, we have our own Materia Medica, a subject yet in its infancy from a dental standpoint, (and one which should perhaps have for its lecturer a dentist) —a host of drugs and preparations, a thorough therapeutical knowledge of which should be known, not merely those for mouth washes, powders and the like, but for the treatment of various local conditions arising from dental causes, whether for antiseptic action or otherwise, or for the avoidance of pain in dental operations either by anæsthetics or obtundents, for prophylactic or remedial treatment. But this of itself opens out a large field of thought. Then again, does the treatment of irregularities receive that consideration which the daily calls for in practice suggest? And again, there are numerous other subjects, in which further study is desirable, but which are of a more purely dental interest in mechanical and especially operative dentistry, — metallurgy, physics, electricity, jurisprudence and bacteriology. But these must suffice to show it is not to make easier but, I hope, more beneficial the training of the dentist, that I urgently appeal for unbiassed consideration of the question, one which I am sure if rightly approached by the Dental Schools, and reported on to the Medical Council (of whose foster parentage we should not too much complain) they will give ear unto, but at present they may percieve that there are factions, and so hesitate at endorsing one or other views, and instead of the advocacy of medical qualification to a person possessed of leisure and means, and who has a desire to pursue further studies, rather should we suggest courses of study the more likely to aid his proficiency or scientific interest, post graduate courses in operative dentistry, analytical chemistry, Bacteriological investigation, or the use of therapeutic agents.

It is with no desire of carping criticism that I feel compelled to put forward these views, but with an earnest hope that no misinterpretations may be conveyed by recent action, and that a system of education well begun may be extended in the best interests of the profession and the individual; and although rightly many improvements have been made in the course of studies by the examination in mechanical dentistry, the inclusion of physics (?) and practical metallurgy, and the more careful attention paid to the study of tissues in health and disease, nevertheless there is no denying the fact that during the period of 40 years in the important debates on educational questions the same doubts have arisen as to the wisdom of the incorporation of certain subjects, which the "experience of time has not disproved." The fact that in spite of the "slight upon our country," so many desiring the greatest proficiency in their calling visit other countries in search of the more special training, and while on the one hand you have some maintaining for excellence in dentistry *per se*, you have on the other a few advocating medical degrees—but all showing conclusively that a state of dissatisfaction exists; truly a healthy state, but still one requiring most careful judgment in meeting the needs.

Now, does it not follow that for the elucidation of these important questions, the dental profession should have some responsible *representation* either on, or capable of being appealed to by the Council, and which shall be the mouthpiece of the views either of the profession as a whole, or at least of the educational institution. When the facts laid before us, that some 5,000 names are represented on the Register, some £8,000 has been absorbed in the funds of the Council, and towards which some £500 to £600 are anually contributed, and that one-sixth of the working expenses are paid by dentists, it does seem only right that such a body of opinion should be represented. And whether by the nomination of a representative on to a seat of the Council, or by the establishment of a sub-committee, to which dental delegates might be sent, or the selection of a representative of the schools, whose suggestion might therefore on that account have weight with the Council, any of these would afford the justice and desert of the profession in having its opinion consulted, and its desires of progress carried out. But I must speak with no hesitancy on the suggestion made that such representatives should be those who are on both the medical and dental registers. I hold it would not of necessity debar anyone for such a position because he held a medical qualification, but I do most emphatically say that we are dentists, and that our only registerable diploma is the L.D.S., and *ipso facto*, that alone qualifies the candidate for our suffrage, and further, this nomination must be by no mere faction interested in one scheme over another, but either by the direct poll of the whole profession, or better as under present conditions by the nomination of all the dental schools in the United Kingdom. We have such men who would worthily interpret the views, and at the same time, such a scheme ought the further invigorate the enthusiasm for the common weal in all educational centres, and by that means, too, arguments of weight, and with united support, could be brought before the Council, to which I feel sure they would give respect. In many councils there is much wisdom, and in a question of this magnitude collective wisdom should be sought.

I only fear that these considerations have but poor support in the language clothed, although earnestly meant, and from no more limited thought bestowed upon the question. But I do sincerely hope more able pens than mine will discuss this problem, that we may have the best interests of the profession maintained and advanced. D. H.

DISTINCTION BETWEEN ARTICLES OF SILVER AND OF NICKEL.—The author uses a concentrated solution of silver nitrate. Genuine silver remains bright if moistened with the liquid; spurious articles turn black. Lacquer, if present, must first be rubbed off. The writer mentions, also, the 10 per cent. solution of chromic acid. A drop of this liquid produces on silver a purple-red spot, but on other metals (except gold and platinum) a greyish black.

*Chem. News.*

## APPOINTMENT.

Mr. Kevin E. O'Duffy, L.D.S.Ed., has been appointed Dental Surgeon and Lecturer on Dentistry to St. Vincent's Hospital, Dublin.

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

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# THE ACTION OF ARSENIOUS ACID ON THE DENTAL PULP.

By M. D'Argent, Paris.

Translated by Wm. Rushton, L.D.S.Eng.

When it is found that the changes which are the consequence of exposure and inflammation of the pulp have proceeded too far to make pulp conservation advisable, our only way of preserving the tooth, and putting an end to the painful symptoms caused by the pulp lesion is by the destruction of the pulp. The causes which make pulp-capping inadvisable, are all so many indications that the pulp should be destroyed.

Pulp-destruction consists of two operations, two distinct phases; firstly, devitalisation; secondly, extirpation. We will only consider the first operation, which forms the subject of this thesis. Many processes have been successively employed to obtain devitalisation of the pulp, and recourse has been had to numerous physical, chemical, and organic agents, about which it may be useful to say a few words, before enlarging upon those agents which have proved themselves far superior to all others, namely, the oxygen compounds of arsenic.

Mineral acids have been employed, sulphuric nitric, and hydrochloric; but as they also attack the hard tissues of the tooth their use has not been successful; moreover, their action on the pulp is very painful. Lactic acid which likewise has a softening effect on the hard tissues is also unsuitable. The action of carbolic acid is too slow and requires too many dressings to destroy the pulp unaided.

Alkaline bases have been used, namely, potash, soda, and lime. These act by absorbing water from the tissues, and by saponifying fats, but their power of diffusion, which is five times greater than their surface application renders their employment impossible.

Chloride of zinc is an excellent caustic which does not destroy the hard tissues, and which cauterises deeply; but the pain it produces is intolerable, and prevents its use. Nitrate of silver is also a good escharotic, combining with albumen very quickly, but its action is superficial and painful on the pulp. Chromic acid, like the other acids, only gives imperfect results and is very painful.

The actual cautery in use for a long period, is abandoned at the present day, because of its barbarity. The same reproach, however, does not apply to the oxides of arsenic, especially when they are used judiciously, that is to say, when employed in conjunction with other substances of an auxiliary or corrective nature. There are two oxides of arsenic which can be employed, namely, arsenious acid and arsenic acid.

Arsenious Acid, $As^2O3$, also called white Arsenic and Arsenic.

Solid, white, inodourous body, with a mawkish taste, acrid, very poisonous. Slightly soluble in cold water, 1 in 80. Resembles powdered sugar. Antidote, calcined magnesia.

The recent preparation is vitreous and hydrated, later on it becomes dehydrated, and looks like porcelain, but it can be changed to its former state by hydrating afresh.

Arsenic Acid $As_2O_5$. No other synonym.

Solid, white, inodourous body, with an acid, acrid caustic taste. Much more poisonous than Arsenious Acid, because it is much more soluble, and consequently a much greater quantity of the poison passes into the blood.

The recent preparation is hydrated, the water can be driven off by heat. It reddens blue litmus paper.

When burnt both Arsenious and Arsenic Acids give off a strong odour of garlic.

Let us now enquire what is the special action of these compounds which has made them superior to all others in the devitalisation of the dental pulp.

Arsenious Acid deeply cauterises the tissues and causes considerable pain. *It only acts on living tissue*, and it is necessary to limit its action to the point to be cauterised. On the flesh it produces an eschar which continues for fifteen or twenty days. But its action is totally different to that of ordinary caustics; after having impregnated the histological elements, it does not destroy their structure. It acts by preventing the exchange of the materials of nutrition, and thus sets up an inflammation which ulcerates and separates the living from the dead tissue. It has no action on the dead body. For its effects to be produced it is necessary that vital action exists, thus differing from chemical caustics which act indiscriminately on dead as well as living tissue, just like the actual cautery does.

The action of Arsenious Acid is also more active on tissues of impaired vitality, because its molecules are not so easily drawn into the circulation, and consequently its action is more purely local. For instance, in local applications for cancer, it seems to select the cancerous tracts upon which to exercise its effects, disregarding the margins of the affected part, where an active circulation resists its influence better.

In its application to the pulp, we find that it does not destroy the organ chemically; it leaves the elements of the pulp practically as they were, so that we are often able to extract the pulp whole, although devitalised by the action of the caustic. Its application produces a congestion followed by arterial obliteration, following which, nutrition of the part is prevented. This results in an ulceration separating the living from the devitalised part. It produces severe pain, all the more acute when inflammation of the pulp is recent, because the exposure is small and the pulp is congested and has no room to swell. On the contrary, when the exposure is large and the pulp suppurating, or when in old subjects there is a certain amount of pulp atrophy, the arsenious acid acts quickly and painlessly, or with only a small amount of pain. In young subjects the vigorous pulp reacts energetically, especially after a sharp attack of pulpitis accompanied by a small exposure occurring in more or less healthy dentine. In this case the pulpitis is aggravated, and the pain may be very severe for from six to twelve hours. Sometimes periostitis follows the use of arsenious acid, and this is occasionally caused by the drug being improperly sealed in the tooth, but it is often the consequence of the inflammation of the pulp spreading to surrounding alveolar tissues, or to the propagation of infection from an infected pulp. The action of arsenious acid is the most energetic and persistent of any drug of which we know, and we can affirm that in all teeth in which it has been placed, devitalisation is sure to occur even although it has been inserted some distance from the pulp; it operates more slowly, but nevertheless surely. The slight solubility of arsenious acid makes it preferable to arsenic acid which is very soluble and even diliquescent.

Combes prefers arsenious acid because of its slight solubility which prevents its diffusion and consequent periostitis. Dubois denies the remote action of arsenious acid, and affirms that arsenic acid ensures a more rapid disorganisation. The latter, however, according to Dubois, is quite as painful in its effects as arsenious acid, and he has attempted to remedy thi inconvenience by studying the causes of it, and in seeking to diminish it by the addition of counteracting agents. The arsenic produces congestion of the pulp, so it is with the drugs which favour vaso-constriction that Dubois has experimented. He first tried atropine, which has given him the best results. But the highly toxic effects of this substance induced him to abandon it, and replace it by eserine, the constrictive action of which is also great. Moreover, the toxic effect of the latter is five times less than that of atropine. Eserine is the alkaloid of the Calabar bean.

But Dubois was not content with producing a counter-balancing action to that of arsenic acid, he has also added cocaine, which while constrictive, also possesses the property of being a local sedative of the first rank. The following is the formula which the author recommends :—

| | | |
|---|---|---|
| Arsenic acid | ... | 5 parts. |
| Eserine | ... | 2 parts. |
| Cocaine | ... | 2 parts, |
| Chloroform | q.s. to form a paste. | |

Therefore if this application of Dubois' is applied according to the rules of special therapeutics, (on which we will not dilate, as it is outside the range of our subject), the pain is absent or insignificant, whether the dressing is made on the actual pulp or not. The desired result, pulp devitalisation, will be more or less quickly obtained, but the patient will not be obliged to suffer the painful affects of the usual arsenical dressings, used pure or compounded with imperfect auxiliaries such as morphine, creosote, phenol, etc.

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To know where and when not to use crown or bridge work, is as essential as to know how to do it.—*Dominion.*

# THE PULP; ITS CONDITIONS AND TREATMENT.*

By Sewill Simmons, L.D.S.

*Continued from page* 152.

Of course some practitioners claim that the vast majority of unhealthy pulps may be rendered healthy, and subsequently capped, even though suppuration has proceeded to the destruction of a considerable portion of the pulp,—that has not been my practice,—I therefore cannot speak with authority on this treatment. My plan is, in the case of a tooth with a visible exposure, and the usual inflammatory symptoms, to mix a very small quantity of arsenical powder with a couple of drops of carbolic acid, place this on a very small pellet of cotton wool, apply this directly on the exposure, and cap this over in the same way as you would, if you were desirous of saving your pulp, allowing no pressure on your dressing, then fill the rest of the tooth with gutta percha. Care must, of course, be taken that none of the arsenic reaches the gum, so it is advisable as far as practicable to use the rubber-dam. I have never seen any of the disastrous effects described in the text books from the leaking of the arsenic on to the alveolus, and probably the reason is that the effect of arsenic (should any escape) is lost on the mucous membrane of the mouth before it can touch the mucous membrane proper. When the method and precaution I have advised of preventing pressure on the pulp is carried out, I find patients complain of no serious pain, as it allows the pulp the necessary expansion in the process of dying. If there is no visible exposure, and the patient has suffered severely from inflammatory symptoms, I think it far wiser with the patient's permission, to drill slap down through the intervening dentine on to the pulp, and so cause an exposure, and relieve the already too full pulp of some of its contents. Your arsenic will work more comfortably and thoroughly, whereas had you left an intervening layer of dentine, the pulp has no chance of expanding, and death to such a pulp causes untold agonies, which is sometimes so severe as to necessitate a speedy return of the patient, for the treatment suggested in the first place. Before I adopted this method I found this a common occurrence.

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* Read before the Students' Society, Edinburgh Dental Hospital.

The arsenic can be left from one to four days, and the pulp then examined, but should you have occasion to leave it a week or longer, it is advisable to warn the patient that he or she may feel the tooth sore to bite upon. This often happens as the effect of the arsenic passes through the apical foramen, and affects the periosteum, but I have found this effect to pass off in a few days later, and the tooth becomes quite comfortable notwithstanding the presence of the arsenic in the pulp chamber. It is exceptional not to find the pulp dead on the patient's return in three days' time, and do not be alarmed if on removing the dressing your patient declares that it cannot be dead, as I have found the superficial layer of dentine lying directly over the pulp rarely loses its sensitiveness from the effects of the arsenic, but directly you are well into the pulp it seems to have had its full effect. I take a medium sized bur, and cut right into the pulp chamber, then a fissure bur, and cut it out till I have all the edges of what was the pulp chamber cut away. Do not forget you have a large pulp to get out, and it is impossible to do so through a small opening. In fact, to put it broadly, I never need to remove my pulp proper with a Donaldson's nerve bristle, as I have already done so with my bur, in fact your nerve extractor should only be needed to remove that portion of the pulp which lies in the canals to the apical foramen.

It is one of the commonest occurrences at this Hospital to see a student endeavouring to get out a pulp through a very small aperture. Never be afraid to get perfect access to your root canals, otherwise your root treatment will be a failure.

I have on many occasions drilled into upper molars with a large filling in the distal surface from the anterior surface, as I find it absolutely impossible to get round corners in removing the canal portions of the pulp, and in doing so you will be wise to allow the bur to have a tendency to work to the palatal wall, as you are safer in this direction, and you can easily find the buccal roots when you have discovered the palatal one. In lower molars of course the larger and more distinct root of the two is the distal one, and so the tendency is to work backwards on to this from the anterior surface. The pulps in the six upper front teeth are easily accessible from the palatine surface, and here again should you find a serviceable filling, it is, I think, better to leave it, and drill into the pulp from the surface suggested.

After having satisfied myself that I can get access to the root in nearly or quite a straight line, I take a Donaldson's nerve extractor, which has been previously dipped in sulphuric acid ($H_2So_4$), and pass it through by the side of the pulp in the root canal as far as it can be got to go, it is then rotated for a turn or two so as to entangle the pulp, and is then withdrawn. The operator breaks off the pulp at the apical foramen. After this, I dip my nerve extractor in a 50 per cent. solution of $H_2So_4$, and work it carefully up and down in the root canals until I feel satisfied that all *debris* is removed, neutralizing the effect of the $H_2So_4$ by a saturated solution of Bicarbonate of Soda. My next aim is immediate root filling, and for this purpose I find formagen an excellent medium, working it up gently to the apical foramen with an old unbarbed Donaldson. I next fill the pulp chamber proper with gutta percha. Many practitioners ream out their nerve canals with a Gateshead drill, and fill the roots to the top as far as possible with gutta percha points made for the purpose. I have never adopted this method, and should you do so, it is necessary to remember great care should be displayed in not forcing the air, which is naturally in the empty canal through the apical foramen, as you may by this means set up inflammation at the apex of the root. I might say before using formagen, I for some years filled my roots with cement and iodoform mixed. I found this mixture excellent, as the cement and iodoform, should your roots give you any further trouble, could easily be removed. Some practitioners at the present day leave the root canals empty, or I should say, allow what pulp there is in them to remain, being satisfied in extirpating the pulp proper, and inserting a mummifying material in the pulp chamber, and I believe Mr. Dall, of Glasgow, has had great success with this treatment. Before leaving the subject of pulp removal, I should like to mention two methods of doing so, without the use of arsenic. The first is a very old-fashioned method, and is applicable principally to the front teeth, and that is, of taking a broach or nerve extractor, and boldly thrusting it up quite to the apex, and giving it a turn or two so as to cut or break across the pulp at this point. This is a very useful method when a tooth has been broken across by some accident, and there is no hold for an arsenic dressing, but a little gas is desirable in order to spare the patient the very severe though brief pain which the operator will necessarily cause. The second is that of cataphoresis which Mr. Ezard, and other operators have used so successfully. I have never tried it myself, and varied are the opinions expressed as to its value. One busy practitioner told me he had discarded its use on account of the time expended in its manipulation. Mr. Murray Thomson, with whom I had a long conversation concerning its merits, was highly delighted with his experiences, and he recounted to me a case of a gentleman coming to him with a visible exposure in a front tooth, he applied the current, and removed the nerve absolutely painlessly in 15 minutes, and there is no doubt, worked as it always is under aseptic conditions, that it should be *par excellence* one of the best methods of removing pulps. The acute inflammation either becomes chronic, or the strain is so great that the pulp becomes gangrenous, a natural result of severe inflammation in any other vascular tissue. I think we, as a general rule, forget the fact that after all, the pulp has not a peculiar pathology, and the morbid changes which occur in it, are in their nature essentially the same as similar inflammatory processes in other vascular tissues, not forgetting the fact that you have this vascular tissue as it were enclosed within the rigid walls of a chamber, which allows neither of swelling, nor of the ready escape of exudations.

Suppuration then is the sequence of severe inflammation, the pulp being entirely destroyed. On examination the canals are sometimes found to contain the gangrenous pulp entire, an ashy grey-coloured, more or less coherent mass, with the characteristic odour, or merely a semi-fluid mass of decomposing tissue. In other instancos the pulp cavity and canals may contain only fluid and foreign particles, all traces of pulp tissue having disappeared, and often such teeth may go on for years without giving any great pain, allowing, of course, that there is a free opening to allow of any pus escaping, hence great care must be exercised in not closing such a tooth. I find the best method when in doubt as to the vitality of a pulp, is to try the effect of cold or very hot water, which, should the pulp be dead has no effect, or a heated instrument applied to the tooth will have the same effect.

The treatment of these cases consist in thoroughly clearing out and enlarging the pulp chamber, so as to expose all the canals, I then wash away all the debris with warm water, apply the rubber dam and commence the use of full strength $H_2SO4$. The reason I use it strong is because I find it has a greater affinity for the aqueous portion of the pulp, and it seems to do the work of clearing away all pus much more readily than a 50 per cent. solution. I sometimes spend 15 minutes working this strong $H^2SO4$ up and down the canals with a barbed Donaldson's nerve bristle, and neutralizing the effect of the acid every now and then with bicarbonate of soda. After having satisfied myself that all is clear, I find washing out the canals with peroxide of hydrogen $(H_2O^2)$ leaves a beautifully clean and white surface. I then proceed to fill the root canals with formagen, and the pulp proper with gutta-percha, I then put a temporary gutta-percha filling into the tooth, and leave it for a week, should all be comfortable at the end of that time, I fill the tooth with a permanent stopping.

I have filled hundreds of pulp canals, and I can honestly say, since I took to the sulphuric acid treatment, I have had far more successes than before I knew of it, and even should your tooth start troubling again after your permanent filling has been inserted, it is very easy to re-open your pulp canals and seek for the cause of trouble, and so save the tooth. I remember an upper canine that I filled, or thought I had filled to the top, the tooth remained perfectly comfortable for two years, but the patient returned after that time with excruciating pain on taking hot fluids, cold did not affect it. I concluded of course that there must be a small particle of the nerve left at the apical foramen, I removed the filling, and used the $H_2SO_4$ again. Whatever may have been the cause of the trouble the pain ceased, and the tooth has been comfortable up to this day.

Before going any further with the special conditions of the pulp, which I have still to discuss, I should like to say a few words about the dental periosteum or periodontal membrane;

as this membrane is so intimately associated with the pulp, I cannot entirely ignore it.

Inflammation of this membrane may affect the tooth, or may involve several or all the teeth of the jaw. In the latter case it may be caused by inhalation of fumes of phosphorus, or may arise from rheumatism, syphilis, or scrofula, or from cold, or from the effects of mercury upon the system, or from debility, and you can feel pretty well assured that from these constitutional causes it usually affects at once several, or all of the teeth of one or both jaws, whereas from the extension of inflammation or suppuration from a diseased pulp, it will only affect the *one* or at the most the *two teeth situated on each side of the affected tooth.*

I shall not discuss the periostitis caused by constitutional symptoms, but confine myself to that caused by a diseased pulp. The symptoms are those of uneasiness which increases into aching pain after a short time, the tooth feels too long when closed upon by those in opposition to it. If it is allowed to continue and the cause of the periostitis not removed, suppuration may take place, pus is formed, points and finds its way to the surface of the gum, and this is followed at once by diminution of the pain, and by slow subsidence of all the symptoms.

The differential diagnosis between inflammation of the pulp, and periostitis is, that in the one the trouble lies within the tooth, in periostitis it is without, the one is affected by cold and heat, in periostitis only by the touch. Of course you must not forget that the two conditions co-exist, but when the periosteal pain exists alone it is generally due to the pent-up discharges in a tooth. Of course the treatment consists in removing the cause; if it is due to inflammation of pulp treat this, and the periosteal pain will subside; if due to pent-up decomposing matter open up the tooth thoroughly, and the periosteal pain will cease in a day or two. It is necessary when there is any great amount of periosteal pain, to warn your patient that it will not subside immediately, but probably will require two or three days before the tooth feels quite comfortable again, but you may depend upon it if you have diagnosed the cause correctly, and treated it accordingly, the symptoms will all disappear.

There is no doubt that drugs have a great effect in assisting us to reduce periosteal pain, and it is wise if there are any signs of a dirty tongue, or other reasons to suspect impaired digestion, to order a brisk purge, but I do not consider this treatment sufficient in itself, without treating the direct cause. If the symptoms already mentioned are allowed to continue without the proper treatment, an alveolar abscess invariably follows, and under some circumstances will materially assist the dentist.

You all know the appearance of an alveolar abscess, it is nature's cure to evacuate the pent-up pus, and our endeavour is to cure it as soon as it appears, as I am convinced that a long-standing alveolar abscess is practically next to impossible to treat successfully; you may do so temporarily, but it usually reappears, but that is not the case with one that is newly formed. The method I adopt is to open up the roots thoroughly, clearing away all obstructions by means of strong $H_2SO_4$, and then with a small piece of vulcanite rubber forced into the pulp chamber, use a pumping action to drive through carbolic acid, (I prefer this to $H_2SO_4$, as it pales the gum and enables the operator to be certain that he has driven the drug through the fistula), until you see this appear at the opening of the fistula on the gum; then fill the root canals with cement. It is useless, I think, using any temporary dressing in these cases, as your idea is to close the circulation of pus through the fistula and into the tooth as soon as you have as it were, burned away the unhealthy tissue, and given it fresh healing power.

In treating an alveolar abscess it is sometimes difficult in a tooth with more than one root to be perfectly certain from which it proceeds, but the position generally denotes this, and be careful not to use pumping action up the remaining roots, as otherwise you may be unfortunate in setting up irritation in any otherwise healthy root.

Before drawing my paper to a close, I should like to say a few words as the accidents affecting the pulp, especially in reference to children under the age of twelve. As you all know, the central and lateral incisors are not fully formed to the apex till ten years of age, the canines three years later, the bicuspids soon after this, the six year old molars at ten, the twelve year old molars at sixteen years of age, and it is needless for me to tell you that should the pulp be destroyed at any time before the tooth is fully formed, it will not grow after this, therefore it is necessary to do what lies in your power to save the pulp in these teeth, until the tooth is fully formed. I have had some little experience in these matters, as my colleague is officially connected with an infant school, and naturally should any accident happen, the children are sent to us for treatment. A boy aged eight, was brought up with his two front teeth and a lower incisor smashed off, caused by a fellow pupil throwing a hair brush at him. On examining them I found all the pulps very sensitive to the touch, and practically exposed. I took a model of the teeth, and caused gold caps to be made to as far as possible replace the part of the tooth which was broken away, and fixed them in with cement after capping the exposed pulps in the usual manner. The patient at once got immediate relief, and the symptoms of uneasiness subsided in a day or two, and on his visiting me two years afterwards, I found all the pulps healthy, and I hope at some future date to remove the gold caps, and replace them with something more sightly. I think it is a distinct advantage to restore the bite to its normal height, as the lower teeth are very much inclined to move up, and so derange the bite.

I fear I have already exhausted your patience, but before ending this paper I should like to recount two accidents which came under my notice.

The first was a gentleman, aged 35, who broke a left central incisor with his pipe, from a fall when skating on the ice. He had little or no pain, but as it appeared unsightly he was anxious to have a substitute. which I gave him, The right central was apparently uninjured by the blow, but in six months time it became so black as to be anything but pretty. I therefore surmised that it had died, and drilling into it found that to be the case. After removing the debris of the pulp it regained its normal colour.

The second case was that of a young man of 20, who met with an accident running after a tramway car; just as he was about to get on board, his stick awkwardly got entangled between his legs, and in falling he struck the edge of the car with his two front incisors, knocking off one, and fracturing a small piece off the other. The one I pivoted, and in the other I placed a gold filling to restore the contour; both teeth were perfectly comfortable for a year afterwards. He complained of no pain on taking hot or cold water, but one day he came up to me in a hurry complaining of acute inflammation in the filled tooth. I drilled into it and arsenised it, removing the pulp at another sitting, but I felt convinced that the blow must have caused a degenerative change, which as you see, did not affect the tooth till a year afterwards.

There is yet one more condition, gentlemen, that I cannot well pass over, and that is calcification of the pulp. It is usually met in people who are predisposed to the condition, but I have often found it occurring in teeth which have been largely filled, especially if cement has been used as a covering medium to the pulp. The pain is somewhat like that of chronic inflammation, and the patient generally complains of pain on lying down, and it is distinctly of the neuralgic type. The only treatment seems to be destroying the nerve in the canals, and removing the pulp stones. I have found, as a rule, that arsenic has little effect in these cases, and it is unfortunately necessary to remove the pulp stones causing no small amount of pain to the patient, before your arsenic will take proper effect.

Just one word as to the instruments used in removing pulps. It is needless for me to warn you that any you should need must be in an aseptic condition, and I have never yet met with a case where I could not remove the nerve in the pulp canals with a Donaldson nerve bristle, having the hook in such a condition that it is unable to pass over the back of the hand without catching, and before I use it in every case I dip it into $H_2SO_4$, and neutralize the effect with bicarbonate of soda.

Well, gentlemen, to summarise what I have said to-night, if you carry away with you these three important points I shall feel that my labour has been well repaid :

1st. Get your symptoms.
2nd. Open up your pulp chambers thoroughly.
3rd. Work under aseptic conditions.

In conclusion, gentlemen, I thank you for the patient hearing you have given me on this important subject, and I hope you will all strive to master it, so as to enable you not to resort to the use of the dreaded forceps, so that you can take for your motto, " not extermination, but preservation."

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INLAYS.—The colour of the cement has a considerable effect on the shade of inlays.—*F. J. Ross, Dominion.*

British Journal of Dental Science.

LONDON, MARCH 1, 1898.

## EROSION.

This disease, described by the observant Hunter as "decay by denudation," has been the source of many experiments and lengthy controversy. In spite of much investigation, its cause has remained a mystery, the various agencies assigned, amongst others, attrition by the tooth-brush, acidity of the gums, consumption of fruit, defective development, absorption, and caries tending to spontaneous cure by obliteration of the dentinal tubes, have all found their exponents, and have all failed to satisfactorily account for the various phenomena observed in this disease.

But lately, Dr. Znamensky of the University of Moscow, has published a paper on the subject which is worthy of all attention, as it seems to satisfactorily explain the cause of this affection. We are all aware that dentine is composed of organic matter—tooth-cartilage—impregnated by earthy salts. In caries we have the inorganic salts attacked by acids, and the organic cartilaginous matter subsequently destroyed by micro-organisms. But according to Professor Znamensky in erosion we have the tooth-cartilage first affected, the disappearance of the earthy salts being a secondary result. The process is therefore the reverse of that of caries. The investigator proceeded by removing the tooth-cartilage of extracted teeth by heating and boiling, and was able by prolonged boiling in a Papin digester to get rid of it entirely. The result of the boiling was that the tooth became soft and could be easily scraped with a blunt knife, while at the same time it became very fragile and crumbly. If the boiling was prolonged at a high temperature, the tooth broke up. The enamel was not much changed, it became however more brittle. It a boiled tooth was brushed by a brush in a polishing lathe without powder, an artificial erosion could be produced, varying in rapidity with the temperature at which it had been boiled. The enamel strongly withstood the action of the brush, so that the dentine could be removed from under it, forming the undercut appearance so often noticed in the mouth. The microscopical appearance of the erosion also differed with the temperature. If the boiling was at a lower temperature the erosion was smooth, but the higher the temperature the rougher the surface became, thus agreeing with the varying microscopic appearances noted in natural erosion. The dentine also became translucent, also agreeing with the natural appearance of many erosions, and the enamel became more brittle and its adhesion to the dentine became weaker. From these experiments Professor Znamensky infers that the tooth-cartilage which binds the calcareous particles together becomes removed by boiling, and that the salts, becoming isolated, very easily fall away from each other, just as in a mixture of osteo and amalgam, as the cement becomes washed away the particles of amalgam become isolated and are easily broken off. A boiled tooth when placed in an acid decalcifying solution is dissolved much more rapidly than one which has not undergone boiling, and the rapidity of decalcification varies with the temperature at which the tooth has been heated. Professor Znamensky also used dry heat by means of the blow-pipe, both directly on the tooth, and also when the latter was protected by a thin layer of plaster of Paris. He found that at the heated part the dentine swelled and the enamel peeled off, leaving an appearance very similar to the so-called atrophy of the crown. As the result of these experiments the investigator draws the conclusions that the tooth cartilage is the cement which joins intimately the granules of lime salts, and that the loss of this cement from any cause induces the mechanical falling off of the isolated granules, which would also be more easily attacked by any acid present. If this goes on slowly, a smooth glossy surface is produced, but if quickly the surface is pitted, the pits corresponding to the bed of the individual granules. The sensitiveness of erosion cavities is explained by the theory that as the process of "dechondration" proceeds, the dental filaments with their tender protoplasm become exposed. This sensitiveness is greatest when the disease is in active progress, and passes away when the defect becomes stationary. Although the investigator thinks that the action of the tooth-brush, etc., does not cause the disease, yet he thinks that brushes, powders, and certain kinds of food modify the defects. He explains the fact that the teeth usually are affected on the labial surface by the theory that the internal alveolar plate is much thicker than the external, its nutrition therefore is better, and consequently the nutrition of the internal portion of the teeth is also better. When the disease is slow, the pulp being irritated by the exposed dental filaments forms secondary dentine and recedes, when on the contrary the disease progresses very rapidly, the new dentine has no time to develop and the pulp becomes exposed.

So far as we know Professor Znamensky's experiments have not yet been confirmed or disputed by other investigators, but we have no doubt that before long we shall have on record the results of similar experiments. If erosion is due to loss of tooth-cartilage, it yet remains to be discovered why the teeth of certain persons are apt to lose this substance, and why certain animals, for instance, many of the seal tribe, are affected by this disease. We shall await further contributions toward the elucidation of the subject with much interest.

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TOBACCO AND THE TEETH.—Ladies who smoke and who wish to justify their predilection on sanitary grounds, have a very good argument in the fact that tobacco smoke is a germicide, though whether smokers suffer less from caries than non-smokers is an open question, and discolouration of the teeth is a disagreeable concomitant. However, we make the New Woman a present of the argument for what it is worth.

The Value of a Tooth.—The value of a tooth as usually assessed in actions in our Law Courts seems to be ten pounds, but half that amount would seem to be sufficient to compensate an Indian fellow-subject in Madras. Injury to the jaw would seem to be on a much more liberal scale if the following case in New York is a criterion:—Miss Essie Abrams obtained a verdict for 10,000 dols. in an action against Clarence Hackett, a dentist, for injuries to her jaw caused by his alleged unskilful extraction of a tooth. The defendant did not put in an appearance, and an inquest was taken before Justice Beach and a jury to assess the damages to be awarded. Miss Abrams claimed she had been injured to the extent of 25,000 dols.

Replantation of Temporary Teeth.—Dr. E. S. Pettyjohn reports a case in which his little daughter, aged two years and nine months, fell headlong down the cellar stairs, completely extracting, as if by forceps, the two upper middle incisors on the edge of the step. The gum was lacerated considerably. The teeth were placed in a tepid normal saline solution, and about an hour after the accident were replaced under chloroform and pressed into position with the aid of forceps. The adjacent gums were rendered aseptic, but no further dressing or application was made. The child awoke in two hours and a half. Milk and soft food were administered, the gums being cleansed after eating. Healing took place by first intention. At the time of writing, four weeks after the accident, the teeth were in position and of normal appearance, as was also the gum.

Lady Dentists.—There has been a good deal in the lay press recently about women who have taken up dentistry, and we wish them all success. But we notice with regret that one lady possessor of the L.D.S. has been "interviewed," and that her portrait is inserted in the interview. This is undignified, unprofessional, and unworthy of the pioneer of a new and honourable career for women. Of course we cannot say whether the interview and portrait were inserted with her permission or not, but we think it hardly likely that the most intrepid interviewer could have obtained his material without assistance from the principal person concerned.

A THEORY OF THE ORIGIN OF ATMOSPHERIC OXYGEN.—T. L. Phipson, who has communicated several papers on the origin of atmospheric oxygen, is of opinion that the earth's atmosphere originally consisted of nitrogen only, and that the carbon dioxide in the air, water, and earth was subsequently furnished by the action of volcanoes. In this atmosphere of nitrogen, carbon dioxide, and water the primitive plants thrived, being essentially anaerobic, and free oxygen was the product of their activity in decomposing the carbon dioxide. The conclusions finally arrived at by the author of this theory are: (1) that in the earliest periods, as at present, nitrogen constituted the major portion of the earth's atmosphere; (2) that the presence of free oxygen in the atmosphere is entirely due to the action of vegetation; (3) that existing plants, like their primitive progenitors, are essentially anaerobic; (4) that the proportion of free oxygen in the air has been gradually augmented in the course of ages, the anaerobic organisms meanwhile adapting themselves at first to a more or less aerobic state of existence, as in the case of fungi, ferments, bacteria, etc., and later completely aerobic (animal) forms have appeared; (5) that even now the lowest unicellular algæ give out, weight for weight, more oxygen than the superior plants; and (6) that, in proportion as the relative quantity of oxygen in the air has been augmented in the course of ages, the cerebro-spinal nervous system, fhe highest characteristic of animal life, has become more and more developed, this fact being clearly demonstrated by the results of palæontological researches.

THE USE OF NITROUS OXIDE GAS FOR PROLONGED OPERATIONS.—Dr. Heywood Smith, writing to the *British Medical Journal*, says:—Seventeen years ago (January 13, 1881), I performed ovariotomy on a patient, aged 34; the gas was administered by Mr. Tom Bird, and the operation lasted twenty minutes. The patient was admitted into the Hospital for Women, February, 1878, with a tumour in the abdomen, reaching above the umbilicus. For various treatment (uterine) she was at times placed under different anæsthetics, when it was found that every one of them induced violent vomiting, lasting several days. In consequence of the patient's intolerance of the ordinary anæsthetics, I asked Mr. Bird, then anæsthetist to the hospital, if he could give gas for a sufficient length of time to enable me to operate. He promised me 90 seconds to begin with, and after that he would do what he could. The patient was placed under nitrous oxide gas at 2.8 p.m. on January 18th, and at 2.10 I rapidly made a free incision. One tumour was tapped, and its fluid contents drawn off, the main tumour being a dermoid; a further cyst was found growing from the main tumour. Both were brought out of the wound; the pedicle, a broad one, teansfixed and tied with China twist, the tumours (of the left ovary) cut away, and the wound closed with eight silkworm-gut sutures. Though the operation lasted twenty minutes two or three minutes should be subtracted, as the patient retched just after the tumour was cut away. Mr. Bird kept up the anæsthesia by interrupted inhalations; the patient, well under its effect, apparently only feeling (?reflex) when the pedicle was dragged upon, and when one of the stitches was being introduced. There was no subsequent sickness, and the patient did well.

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Sarcoma of the Tongue.—Mr. Harry Littlewood, at a meeting of the Pathological Society of London, recorded a case of the above somewhat rare condition. It occurred in a boy, aged 17, admitted into the Leeds Infirmary. The growth followed upon a scald of the tongue, which led to the formation of an ulcer; mercury and iodide of potassium was administered without avail. The much-enlarged organ was excised, and a few weeks later there were removed the enlarged lymphatic glands beneath the lower jaw, which had been left owing to the shock occasioned by the removal of the tongue itself. The growth occupied the middle two-fourths of the organ, and was found to be a round-celled sarcoma. No recurrence took place in the stump, but a growth appeared later in the left tonsil, and the adjoining lymphatic glands. Mr. Targett had in the *Guy's Hospital Reports* collected eleven instances of sarcoma of the tongue, and others had since been placed on record. By English writers the terms "round-celled sarcoma" and "lymphosarcoma" appeared to be used synonymously.

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DENTISTS AND MEDICAL PRACTITIONERS.—The following are taken from the *British Medical Journal*:—

" A. asks what is the general custom between medical and dental practitioners regarding charges for attendance and professional services? Is it usual for medical men who attend the wife and family of a dentist to charge the same fees as for an ordinary patient?

"⁂ The general custom appears to be that when the dentist and the doctor are friends and neighbours, and reciprocity reigns between them, for the question of fees to be in abeyance. On the other hand, it is the custom for half fees to be paid on either side in a large number of cases, while in some cases each side insists upon paying full fees, but this is the most unusual.

The following is an answer to another query :—

A registered medical man, who by administering anæsthetics to the patients of an unqualified dentist or other unqualified practitioner, would be probably held to have rendered himself liable to be convicted of the offence known as "covering." If convicted his name might be erased from the *Register* by order of the General Medical Council.

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Cancer.—Dr. Noel says the presence of cancer in the human race is due to infection, the germs being received either by manual contact or by absorption in food or drink. He discovered some years ago that cancer was much more prevalent among residents of thickly wooded sections of the country and was almost unknown in cities and on high plateaus. Then he began experimenting with the sap of various trees, and finally discovered the germ with which he inoculated a dog. The animal soon showed every symptom of cancer. The doctor also claims the boil-like growths or excrescences found on the limbs of trees are infectious, and that the germs of cancer and other diseases may be carried by wasps and other insects to the body of a human being. This theory is receiving deep thought and attention in France, and it may yet be possible to vaccinate for cancer.

## THE UNIVERSITY OF LONDON BILL.

The prospects of the London University Commission Bill are somewhat uncertain, for at the time of writing no definite promise as to the date of its introduction has been obtained from the Government. As will be seen from the report of the last meeting of the Council of the Royal College of Surgeons, which is published in another column, that body has agreed to join, in conjunction with the Royal College of Physicians, in the deputation which the Committee of Delegates of the metropolitan medical schools are arranging to interview the metropolitan members of Parliament with the view of gaining their support for the promised Bill. The London Unionist members are organised as a Committee for dealing with questions affecting the welfare of London, but this is not a party question, and the deputation will seek to enlist the sympathy of London members of all parties. As has been observed on previous occasions this appears to be from many points of view a move in the right direction, and it is to be hoped that other educational institutions in London may be induced to join with the representatives of the medical schools in enlisting the interest of metropolitan members of Parliament.

*British Medical Journal.*

# Abstracts of British & Foreign Journals.

## THE MEDICAL AND THE DENTISTS' ACTS.

### REPRESENTATION OF DENTISTS ON THE GENERAL MEDICAL COUNCIL.

At the dinner of the Metropolitan Branch of the British Dental Association on January 27th, the guest of the evening was Mr. Victor Horsley. The chair was taken by Mr. Sidney Spokes (President), and the toast of "The Visitors" was given by Mr. Charles Tomes, who referred to the movement which is on foot to obtain for the dentists representation on the General Medical Council. He added that the representative would not have a bed of roses, but he insisted upon the necessity of combined action, and referred to the reception which had been accorded to a deputation, of which he and Mr. Victor Horsley formed part, which waited upon the Board of Trade.

Mr. VICTOR HORSLEY, in the course of his reply, referred to the same deputation, and observed that it related to the prevention of unqualified practice. I believe (he continued) that the same oversight has been committed in interpreting the Dentists Act as I have recently shown has been made in reading the Medical Acts, because our Acts and yours are practically the same. My views, which have been published in the medical journals of the past fortnight, received encouragement on that occasion, although they are receiving anything but encouragement now. My point is the reading of Section v. of your Act, which, like Section vi. of the Medical Act of 1886, confers upon you a privilege as a class, and that privilege is the right to practise your profession. It does not say that anybody else is entitled to do it. There are no Acts dealing with this subject excepting the Apothecaries' Act which confer such privileges, and therefore I ask, how can it be contended that our Acts do not protect our livelihood? How could it be a common law right that anybody through the world might practise any calling they liked in this country of ours? Well, gentlemen, when the deputation, including Mr. Tomes and myself, visited the Government office aforesaid, and interviewed a minister of the Crown to prevent by amendment of the Companies Act the evasion of our Acts, the Minister said to us : " What sort of clause do you wish us to put into the Bill ? " and we told him we had drafted a clause which we thought was in harmony with the penal section of the Medical Act; and as our legal advisers informed us that our Acts protected only our titles, we had so arranged the clause. His reply to us was : " You cannot expect me to go into the House of Commons and propose to offer you a mere shadow of protection like that. The only thing you can ask me seriously to propose is something that will deal with practice." Here, then, was a man with no legal bias, who looked upon the matter from a plain common-sense point of view. His idea was that we needed an amendment of our Acts, which would in this matter of the Companies Acts protect us in the practice of our profession. Well, gentlemen, I think that one of the most important statements ever made by a minister of the Crown. I personally believe our Acts do go further than we thought they did. I do not think it would be worth the while of your Association to spend a farthing on this subject, for the reason that at the last session of the General Medical Council the Council was persuaded to institute proceedings, the effect of which will be to bring this question before the High Court. I may say that I shortly intend to publish a paper giving what I believe to be the true legal aspect of the case, and setting out the same more fully than was possible for me to effect in the medical press recently. Now, I say this matter is going into court—I said by a slip of the tongue the High Court—but perhaps the idea that the case would, in all probability, go there was father to the word. Of course, in the first instance, the case will be heard in a magistrate's court ; and we are taking care that the case thus brought forward shall be one of superlative enormity, so that it would be very difficult for the judges of an Appeal Court to refuse us that recognition of right and justice which I believe is ours and yours. But speaking of registration, your Act has recently suffered the worst attack that has ever been made upon it. It suffered that attack because your branch of the profession had no direct representative on the Council, for if you had had a representative member on the Council he must have been put on the Executive Committee. The danger arose from what I believe to be strictly speaking an illegal standing order, which provides that the Dentists Act shall be administered by the Executive Committee of the Council. Section ix. of the Medical Act, 1858, truly provides that the Council may devolve certain of its powers to the Executive Committee, but it certainly never meant that a whole Act of Parliament —dated 1879—was to be handed over to a half-dozen men who might or might not be present at a meeting of the Committee. The result is what might have been expected—a serious fiasco. At the next meeting I am going to move a resolution that this standing order shall be rescinded, and I shall further ask that the Dentists Act shall be administered by the Council as a whole. The situation I may say has what we may call a humourous side, for it has distinctly a sort of grim humour about it. The first thing I complained of was the resolution of the Executive Committee (published in the minutes) that a certain unqualified person should be put on the *Register*. This the Committee followed up by an order that Mr. Muir Mackenzie should be instructed to draw up a description of the qualifications which had to be put in the fourth column of the *Register*. But that is to say Mr. Mackenzie is ordered to describe the qualifications of a gentleman who has no qualifications. So far as we know he has been trying for the last six weeks, but, as nothing has been received at the office, he has apparently not yet succeeded, and I think it is somewhat humorous to think that any responsible person should imagine he could succeed in performing an impossibility. Of course, we saw to it that the Registrar did nothing of that which he had been ordered to do by the Executive Committee. But there is another side to all this, and this other side is not humorous, because what this incident involves is this : all the members of the Council are by the standing order referred to made responsible for this discreditable transaction, although we had not the slightest voice in preventing its occurrence. It is no little aggravation of this unjust responsibility that the details of the affair have been revealed to the public by the breach of confidence lately committed by Mr. Brudenell Carter. To turn to pleasanter thoughts, gentlemen, you may rely upon it that you have more friends on the General Medical Council than you think for ; but if you want to obtain your rights you must really set to work and ask for them. Nothing is got in this world without asking and working, and you must not hesitate to make your wishes known. I think you ought to ask for the next Crown vacancy without any beating about the bush. This is a public affair, and we cannot have any sentiment in matters of this sort. They are matters of ordinary justice which bear printing so that everyone can read them. Surely, now is your opportunity. I hope very much that ere long you will have a direct representative on the General Medical Council; and in expressing that hope I wish before I sit down to point out that your representative when he takes his seat at the Council Board will not find the place a bed of roses, not, perhaps for the reason Mr. Tomes had in his mind, but because, in order to economise time, a great strain will be put upon him to have everything ready *ad unquem.* All he has to do is to take care that when he rises he shall contribute facts to the discussion, facts which he knows to be true, and the documentary proofs of which he has in his pocket. If he does that he will have, as I have experienced, a most patient and courteous hearing from the members of the Council. If he does succeed in winning an entrance he will have the opportunity of doing a great work, and I feel sure that practically every member of the Council will assist him.

*British Medical Journal.*

## PROFESSOR TAFT'S ADVICE TO THE YOUNG DENTIST.

The success of a man in entering upon a practice, whether city or country, is dependent in a good degree upon the ability he possesses. A young man entering upon his profession with a feeling that he is not prepared as he ought to be, not prepared as he might be, is at a great disadvantage. A proper office, a good location, all the first-class appointments, if he is labouring under the impression, "I am inadequotely prepared," he is at a great disadvantage. It prevents him making the success he would make if he could realize "I am well prepared. I think I can understand this case and that case, and the other and the other." The knowledge that he is well prepared is of great help to any young man. My impression is that about half of our students, or more, ought to have a year or a year and a half more in order to make proper success. Another help which is often overlooked, neglected, or does not receive attention as it ought, is that of association—meeting with those who are to be competitors. It is a great help for a young man starting in a town or city to have the goodwill of those who are in the same profession.

Why is it there is not a common feeling and sympathy in a common work as in other things? Men engaged in the same occupation, meeting the same difficulties, should have a common sympathy, which binds them together and makes each one stronger than it would be possible for them to be standing apart. The association of the young man with those about him is a great factor in his success. Let him meet every dentist in his own town and vicinity. Get this good will, and feel that he is to be a help to him instead of an antagonist. It is a great thing for a young man to have a neighbour who can say, "He is a splendid young man. He will do everything well." A young man ought to pay largely for an opportunity or an advantage of that kind. It is common, however, to go to an office, and if not kindly received, though perhaps that man did not have half an hour to give to conversation, he will say, "I was not kindly received when I went there. I am not going again." A young man should make it a point to secure the good will and approbation of his fellow practitioners, especially those whose esteem is worth anything, and put himself in a good position with them. And no right-minded practitioner who has been engaged in the practice will fail to extend the right kind of spirit to a young man who is earnestly, honestly seeking to enter the profession. How very kindly we sometimes hear persons speak of their first intercourse with an old practitioner. I have often heard that of Dr. Metcalf; that he received them so kindly. Another young man will say, "I called on Dr. J., and he bluffed me. He wouldn't show me anything, and I thought this was not a good place, and I had better go somewhere else." Sometimes that kind of an exhibition is made from a proper cause. Another time a young man would say, "I called on such a one; he bluffed me. I called again and he was a little kinder. Now we are warm friends." Suppose he had not gone again and had not received the benefit of that friendship. There is a unity of interest that ought to exist between beginners and old practitioners. Each has a duty to perform that ought to be scrupulously attended to. Both will be helped by the proper course in this respect.

Again, cultivate the acquaintance of physicians, and be able to communicate with them in an intelligent way on medical subjects. The dental student understands the fundamental principles of medicine, and be should be able to converse upon them. The young man should be well prepared for his work and able to do all he professes to do, and he will then command the respect of everyone. If he is not able to do so he will have the distrust of all those who learn the fact. It will ruin the confidence necessary to the success of a young man. Cultivate the acquaintance of real honest, earnest medical men, and steer clear of quacks. A dentist ought, in a good degree, to be an educated man—a scientific man. The scientific questions of the day are abroad. A good dentist should be able to converse upon them. He is at a disadvantage if he is not able to talk with scientific men and educators. The subject of education is one of interest to everyone in all our communities. Hardly a household anywhere but that the subject of education is an important one there, with some member at least. If he can talk intelligently and helpfully to these persons; if he can talk intelligently to physicians on subjects of interest to them, he may be of service to the physician, and they may be mutually helped if they are so disposed.

*Register.*

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## THE INTERPRETATION OF THE MEDICAL ACTS.

An extra supplement to the *Clinical Journal* of February 9th contains a communication from Mr. Victor Horsley, entitled The True Interpretation to be Placed upon the Medical Acts. It is a closely reasoned discussion of the degree and extent of the protection afforded to the medical profession in the United Kingdom by the Medical Acts of 1858 and 1886. The argument is somewhat technical, but we have endeavoured to give below its main gist:

Mr. Horsley first examines the opinion that the Medical Acts, though they strictly bind the practitioner, do nothing in any way to protect his means of livelihood. Mr. Horsley finds it difficult to understand the idea that the Medical Acts only protect the title and do not protect a registered practitioner's personal privilege to practice medicine, surgery, and midwifery. The point is nowhere mentioned in the Acts, for the very good reason that medical titles *per se* did not and do not require such protection.

Mr. Horsley points out that the Medical Acts lay down that if anybody falsely uses a title in order to make the public think that he is registered under the Medical Acts, certain liabilities follow. Section vi. of the Act of 1886, which is a modified version of the repealed Section xxxi of the Act of 1858, describes the right to practise medicine, surgery, and midwifery, which is a privilege attached to registration, and shows that no one but a registered person possesses such a right.

Mr. Horsley contends that the title to the right to practise medicine, surgery, and midwifery is registration, and that Section xl. of the Act of 1858 provides for the complete protection of registration as alone conveying this right. A person practising without being registered violates the Acts, and comes under the penal provisions of Section xl, which provides for the punishment of unqualified, that is unregistered, persons.

Mr. Horsley then argues that the dictum in the *Medical Directory* that "registration is not compulsory upon medical men" is erroneous, the Medical Act containing within itself everything that makes registration compulsory. Registration, according to Mr. Horsley, is compulsory, for if omission of the name from the *Register* be proved, then the unregistered person is shown to be unable to practise and to enjoy the rights appertaining to a qualified—that is, a registered—practitioner. Mr. Horsley contends that the belief that a "qualification" is to all intents and purposes a statutory license to practise is an error. The Medical Act of 1858 says that any person who possesses one or more qualifications referred to shall be "entitled to be registered," no mention being made of such qualifications entitling its owner to practise. The Medical Act of 1886 also makes no mention of qualification alone conferring any right to practise; such is confined to a registered person, and is his sole right and privilege.

A "qualification" therefore, Mr. Horsley concludes, is at the present time useless without registration, and he observes that Mr. Upton, the clerk to the Apothecaries' Society, has recently given his unqualified confirmation to this contention. Mr. Horsley, referring to the other privilege conferred by Section vi of the Medical Act of 1886, namely, that of recovering fees by process of law, maintains that it is inaccurate and inconsistent to admit the possession of one and to dispute the other, for what applies to one obviously applies to the other.

In conclusion, Mr. Horsley said that should the courts not confirm the validity of his views, such an adverse decision would add force to the other reasons which exist for obtaining amendments to the Medical Acts, for it would not be denied that the members of the medical profession who have a far more harassing and expensive training to go through, ought to have the same meed of protection as that which lawyers enjoy.

*British Medical Journal.*

## DENTAL REPRESENTATION ON THE GENERAL MEDICAL COUNCIL.

The following correspondence has appeared in the columns of the *British Medical Journal*:—

Sir,—Should a dentist at any future time be chosen one of the Crown nominees on the General Medical Council, I should, in common with my *confrères* generally, hail such an appointment with satisfaction, as a deserved compliment to an important body of surgical specialists. But I should not expect a dental millennium to ensue on such an appointment.

The most important dental business transacted by the General Medical Council is the framing of a minimum curriculum. The Council has recently proposed to make some reduction in this curriculum, and it seems certain that had there been a dental representative on the Council his attitude toward this proposal would have been determined by his nationality; for while the College of Surgeons of England recommends and supports this reduction, the Scotch licensing bodies are opposed to it.

On no dental question does anything like unanimity prevail; the profession includes such diverse elements and conflicting interests that it is hardly an exaggeration to say that a dental representative would represent nobody but himself. To those who are demanding a dental representative I should like to point out that, of all who hold the dental licence of any of the corporations, it is incorrect to say that they are without representation. The representatives of their respective corporations, I am sure, regard them as constituents, and would at all times be willing to hear and consider any views concurred in by a large or representative body of Dental Licentiates, and would also doubtless do their best to advocate and forward any improvements or reforms which had the strong support of such a body.

Therefore, until I am assured that such efforts as I have indicated, to secure the ear and aid of our present representatives have been made—and failed—I shall decline to join in the cry for a dental representative.—I am, etc.,

William Guy, F.R.C.S., L.D.S. Edin.
Edinburgh, Jan. 25th.

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Sir,—As one of those deeply interested in the progress and education of the dental profession, may I be allowed to add a few words to those already expressed in the *British Medical Journal* on the subject of the dental profession having a direct representative on the General Medical Council. The subject, I need hardly say, is not a new one to us, as it has for a long time past been under discussion by the Council of the British Dental Association, who saw how urgently a representative was required if the public and the profession were to reap the benefits which the Dental Act of 1878 was passed to confer.

We have many gentlemen in the profession who would be an acquisition to the General Medical Council, not only capable of legislating for the dental but also for the medical profession; but we could hardly expect the medical profession to put aside its privileges of electing a gentleman practising as a medical man in favour of one practising the branch of dental surgery. Our hopes, therefore, seem to be in the Privy Council recognising not only the justice of the claim, but the urgent necessity of it, if the General Medical Council is to do its best in the interest of the public and the profession.—I am, etc.,

Frederick Canton, M.R.C.S.Eng., L.R.C.P.Lond.,
L.S.A., L.D.S.Eng.

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Sir,—In reply to the letter of Mr. William Guy I should like to point out that for the last 19 years the General Medical Council has been engaged on vastly more important dental business than "the framing of a minimum curriculum," as witness their labours in the formation and purification of the *Dentists Register*, etc. This difficult and onerous task would have been greatly facilitated had a dental representative had a seat upon the Council; and it is notorious that many of the difficulties they have encountered, and errors into which at times they have fallen, would have been avoided by this simple expedient.

Though it is true that diversity of opinion exists on many dental matters, yet it will hardly be contended that unanimity prevails on all matters purely medical. Mr. Guy, however, will scarcely urge that as a reason for believing the present members of the Council subordinate the wishes of their constituents to their own. And, after all, a dental representative would but suggest and explain; it would be for the Council at large to decide upon all matters brought before it for consideration.

Mr. Guy also considers that the licentiates in dental surgery are sufficiently represented by the members of the Council nominated by the corporations from whence their diplomas are derived. I would, however, point out that every medical man is, in the same manner, represented by at least one of the medical corporations. Yet it has been considered advisable for the profession at large to elect five members to the Council as their direct representatives, and irrespective of the corporations altogether.

Surely, then, there is no inconsistency in asking that one dental representative should be returned for the elucidation of the purely dental business.—I am, etc.,

STORER BENNETT, F.R.C.S. Eng., L.D.S. Eng.

## WHAT IS THERE FUNNY ABOUT TEETH?

This is a conundrum which the *Westminster Gazette* wishes answered :—

"Why does any mention of teeth, natural or artificial, always cause laughter in a mixed gathering? It is really an abstruse question, for teeth to most of us are anything but a laughing matter; even the gas by which you have them out does not make you laugh. At yesterday's meeting of the City of London Guardians the clerk reported the receipt of a communication from the Local Government Board asking if any alteration had been made in the diet of the inmates of the Board's institutions 'who were suffering from loss of teeth.' The letter, *the reading of which caused much amusement*, was referred to a committee for consideration and report."

# Reports of Societies.

## STUDENTS' SOCIETY, NATIONAL DENTAL HOSPITAL.

The last ordinary meeting of the above Society was held on Monday, February 14th, 1898.

The President, Dr. Pare, occupied the Presidential chair for the first time.

The Hon. Sec., Mr. Edward Thorne, read the minutes of the last meeting, which were confirmed.

The visitors were welcomed, and asked to consider themselves members for the time being.

Mr. J. S. Fairchild was proposed a member of the Society, to be balloted for at the next meeting.

In response to the President's request for Casual Communications, Mr. Poundall showed a model of a very interesting case of Transposition, the left upper lateral being transposed to the bicuspid region inside the arch.

Dr. Pare remarked upon the twist which usually accompanied these cases of transplantation.

Mr. Harry Rose spoke to having had a case of transposition in which case the root was twisted to an extent to account for the situation.

Mr. Poundall in reply stated that the root of the tooth shown was not quite straight, but was certainly not twisted to an extent to amount for the position it occupied, he also remarked that the root was slightly absorbed.

Mr. Bennett also showed a model of a mouth containing supernumerary teeth.

The President remarked upon the unusual shape of the teeth, being well formed instead of the diminutive conical shaped teeth one usually meets with in the case of supernumerary teeth.

The next item on the agenda was the Presidential Address.

Dr. Pare explained that owing to a recent bereavement in his family, and an unusual pressure on his time, he had been unable to prepare anything in the shape of a formal address, he also regretted not being able to prepare his paper on "Extinct Types of Teeth," but promised to give the paper before the end of the year

Dr. Pare then proceeded to show by means of the lantern, a considerable number of slides of mammalian types of teeth, sections of some of which were shown in the microscopes, also by photographs.

The large number of 32 were present and showed their appreciation by following closely the lecturer, and questioning him in reference to the microscopic slides, the number of which were so numerous, and members were so interested that Dr. Pare kindly promised to give members a further opportunity of studying them.

The Distribution of Prizes clashes with the date fixed for the next Students' Society meeting, (the altered date of which will be duly announced), but Mr. Roughton, F.R.C.S., etc., has kindly promised to read a paper.

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## ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

The next meeting of the Society will be held on Monday, 7th March, when short papers will be read by Mr. George Brunton, on "The Rationale of the Strip Matrix," and by Mr. J. F. Colyer, on "Formalin in the Treatment of Pulps."

Casual Communications will be read by Mr. F. W. Richards: "An Odontome removed from the Mandible," and by Mr. A. F. Colyer.

J. H. Mummery, H. Baldwin, J. O. Butcher, *Hon. Secs.*

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## DENTAL HOSPITAL OF LONDON.

The Bishop of London, one of its Vice-Presidents, has consented to preside at the Annual General meeting of Governors of the Dental Hospital of London, to be held at the Hospital, Leicester Square, on Thursday, March 17th, at 5.30 p.m.

# Dental News.

## NATIONAL DENTAL HOSPITAL.

The distribution of Prizes for last Session has been kindly undertaken by Mrs. Victor Horsley. The date of the function is the 14th inst, and the place chosen is the Queen's Hall, Langham Place, W.

The Annual Smoking Concert of the Students' Society will be held in the Queen's (small) Hall, on Saturday, March 19th, at 8 o'clock. A first class programme has been arranged by the Hon. Sec, of the Smoking Concert Committee, Mr. F. M. Farmer.

Dr. George Cunningham has promised to take the chair. It is hoped the Smoker this year will eclipse the success of previous years, and that all past students will endeavour to be present with their friends.

Tickets, One Shilling each, can be obtained of the Hon. Sec., Mr. F. M. Farmer, any of the committee, or present Students of the National, or of Mr. Edward Thorne, Hon. Sec. Students' Society.

## BIRMINGHAM DENTAL HOSPITAL.

The thirty-eighth annual meeting of the subscribers to the Birmingham Dental Hospital was recently held at the Council House. The chair was taken by the Lord Mayor, (Councillor C. G. Beale), and there were also present Mrs. Beale, Lieut. General Phelps, Dr. J. H. Blakeney, Messrs. H. B. Neale, F. H. Huxley, A. Turner, W. Barrow, W. Thomas, A. G. Donegan, F. H. Goffe, W. T. Madin, J. Stories (registrar), W. A. Addinsell (honorary secretary).

The Surgical Committee again reported a considerable increase in the amount of work done at the hospital. The number of operations under ether remained the same as in the previous year—31, but the number of operations under nitrous oxide had increased by close on 700, whilst the number of teeth extracted without an anæsthetic showed a decrease on last year. In the conservative treatment of teeth, the amount of work done again showed a very satisfactory increase, but in order to cope with this class of work it was most desirable that the surgical staff should be provided in the near future with premises of a much more extensive and convenient nature than at present exist. It had been arranged that a workroom should be fitted up in the hospital where the students may have practical instruction in the process of making artificial dentures, in order to comply with the new regulations of the College of Surgeons. There are eighteen students attending the practice of the hospital ; 10 have obtained their diplomas in dental surgery at the Royal College of Surgery, and 11 new students had entered the hospital during the year.

The financial statement showed a balance of £234 4s. 3d., of which £200 is to be reserved for building at the end of the present lease.

The Lord Mayor, in moving the adoption of the report and statement of accounts, said the Dental Hospital was one of the small charities which worked in comparative obscurity, but when one contrasted what dental surgery was 38 years ago with what it was now, it was not difficult to realise what an enormous amount of work the institution had done in the meantime for those who suffered from diseases of the teeth. The operations were somewhat startling in their number. There had been something like 15,000 extractions, and of these less than 4,000 were made without anæsthetics. The accounts were most satisfactory. The subscription list had increased by a large amount—an unusual feature—and the general result was that the amount of the credit of the current account had gone up from £114 to £234. It was proposed to devote practically the whole of the credit balance to a fund for acquiring premises, and they looked forward to a day when Birmingham should have a dental hospital equipped in the modern fashion and not carried on in an ordinary dwelling house under great disadvantages.

Mr. Neale, in seconding the motion, spoke of the present premises as quite out of date as regarded sanitation or convenience.

The motion was agreed to.

Lieutenant General Phelps proposed a vote of thanks to the honorary hospital staff and the officers for the zeal and ability with which they had performed their work during the year. Relief had been given to crowds, and he was sorry to say that owing to the progressive deterioration of teeth the crowds were increasing more and more. The matter of a new building was really serious and pressing, and although he was afraid the cost would not be much below £3,000, it was incumbent upon them to provide proper accommodation for those willing to perform such good and necessary work.

Mr. A. Turner seconded the proposition, and it was agreed to.

The Lord Mayor was elected president for the year, and Lord Calthorpe vice-president.

The honorary dental surgeons were re-elected.

A vote of thanks was accorded the Lord Mayor for presiding.

## THE DENTAL HOSPITAL MUSICAL SOCIETY.

The students of this society held a really enjoyable "smoker" at the Athenæum Hall, Tottenham Court Road. It was originally intended to be held at the Shakespeare Club Theatre, but at the last moment it was deemed advisable to change the place of "venue," so to speak. A most varied entertainment was given, and all concerned deserve special congratulations. Mr. Balding opened the proceedings with a sea song, which he capitally rendered in character. He was followed by Mr. Vaughan, who played a flute solo excellently. Miss Ada Cerito, Mr. Harry Lea, Master Claude Smith, Mr. Hubbard, Mr. Taylor, Miss Maudie Nicholls, Mr. Mark Calvert, Mr. Harry C. Ward, Mdlle. Alexia, from the Palace Theatre, and Mr. Manning all contributed to a most enjoyable programme. The evening terminated just before eleven, when a hearty vote of thanks was accorded to Mr. Russell Barrett.

## A DENTIST AND HIS PATIENT.

William John, dentist, of Cardiff, sued John Peters, grocer, of Albany-road, Cardiff, for 11s., balance on a charge for professional services. Plaintiff said that defendant came to him in a very excited state, saying that he had been to two dentists, who could not relieve him, and he would give £5 if he could get rid of his pain. Plaintiff took his tooth out, and charged him a guinea for it. Defendant paid 9s. on account at the time.

Defendant said that before he was operated upon he asked plaintiff what his fee was, and was told that it would be 7s. 6d. After the operation plaintiff said that he had consumed gas enough for four men, and must be paid more, whereupon he paid an extra 1s. 6d.

His Honour: You liked the gas, then?

Plaintiff: It was a very hard case, your honour. He had been to two dentists, who had failed, and he came to me in a very excited state, so that he required a lot of gas. It was a three-rooted molar——

His Honour; Don't talk about it any more. It makes me uncomfortable.

After hearing further evidence his Honour held that plaintiff had not proved that an extra charge was understood in the case, and gave judgment for defendant.

## BIRMINGHAM COUNTY COURT.

An action was brought by Henry Campion, of 2, New Street, surgeon dentist, against Elkan Simons, of 8, New Street, tobacconist, to recover £4 4s. Plaintiff stated that he repaired defendant's teeth in May and at subsequent dates last year. He attended defendant four times, and told him that the charge would be five guineas. Defendant had refused to pay more than one guinea. Plaintiff admitted that he had told the defendant that he would only charge him a guinea if the repairing occupied no more than an hour. He had offered, before coming into court, to settle the account for three guineas, but defendant would not pay it. He had had a quarrel with defendant about another matter, the details of which both sides had agreed not to enter upon. The guinea was paid to a young lady, whom he sent to the defendant to collect the five guineas.

His Honour: Was the young woman in your employment?

Plaintiff: She is a young lady in my waiting-room.

The Judge: Well, I suppose she is a woman.

Plaintiff: She is only seventeen.

The defendant stated that before having his teeth repaired he asked plaintiff what the charge would be. Plaintiff said, "I'll charge you, Simons, a guinea." They had known one another for many years. No mention was made of the operation lasting an hour. When the operation was completed plaintiff said his charge would be three guineas. He (defendant) replied, "Oh, that's monstrous, monstrous, Campion." He had paid the guinea, therefore he owed the plaintiff nothing.

The Judge said that the parties seemed to have done nothing more than to put the plaintiff in the box on the one side and the defendant on the other, and let them tell their different stories, offering not the slightest corroboration on either side. He thought some explanation should have been given him of the cause of the quarrel between them, as it might have thrown some light on the present dispute; but it was no business of his to enquire into other people's private matters. The young woman might have been called—perhaps he ought to say young lady, because he observed that there was a tendency nowadays to reverse the old order of things and call persons in the lower ranks ladies, and those in the higher ranks women. Had she been called she might have explained under what circumstances the guinea was paid. He might be wrong, but he should find judgment for the defendant.

*Birmingham Post.*

## PROSECUTION AT NEWPORT.

At Newport Borough Police Court (before the Mayor, Alderman Bear, and Mr. C. D. Phillips) Michael Solomon, a young man trading as A. Simpson, of 26a High-street, Newport, appeared to answer two summonses charging him with offences under the Dentists Act. Mr. Moore stated that the defendant had inserted advertisements in the local papers in which he advertises his business as "Simpson's Dentorium." In January last, Moses Gregory, miner, of Pentnewynydd, saw the defendant's advertisement and visited his establishment at Newport. There was a piano in the room, and Gregory and Solomon had a conversation as to music, and Solomon said that he had not been able to give much time to music, he having been so busy studying for his profession. Gregory entered into an agreement to take some teeth, and to pay four guineas for the same, and he paid 10s. on account. Subsequently Gregory, not being satisfied, visited the premises again, and asked defendant if he was a dentist, and defendant said that he was.

Moses Gregory was called and bore out the opening statement. He was not satisfied with defendant because he was told that defendant's mechanic had left, and only two boys were working upstairs. The original copy of an advertisement which appeared in the *South Wales Echo*, in which defendant advertised for a mechanic, was put in. The advertisement, which commenced with the word "Dentistry," was in defendant's handwriting.

Mr. Lewis stated that defendant denied having told Gregory that he was a dentist. The Dentists Act did not prohibit any unregistered man from practising dentistry. He contended that the use of "dentorium" was not illegal, "dentorium" meaning a place for teeth,

The Bench decided that the use of the word dentist was proved, and fined defendant £3 3s. and costs—£6 15s. in all. The summons for using the word "dentorium" was dismissed.

*South Wales Daily News.*

## BRITISH AND FOREIGN DENTAL MANUFACTURERS (Limited).

Registered on January 29th, by A. H. Atkins (Limited, 23, Bouverie Street, E.C., with a capital of £3,000, in £1 shares. Objects: To acquire and carry on the business of a manufacturer and provider of dental furniture and requisites, carried on by John C. Rausch, at 16, Poland Street, Oxford Street, W. The regulations of Table A in most cases apply.

## AN INJURED JAW: EAST GRINSTEAD.

## WHITE v. BURT.

Richard White, bricklayer, East Grinstead, sued Alfred Thomas Burt, Licentiate of the Dental Surgery, practising at Catelupe Road, East Grinstead, for £50 for damage for pain, injury, loss and expense sustained by the plaintiff by reason of defendant's negligence and unskilfulness in performing a dental operation.

Mr. Hughes opened the case at length, after which he called the plaintiff, who said he had never had the toothache before January, 1897. He went to Mr. Dixon, a chemist, and asked him to draw a tooth. He (Mr. Dixon), broke the crown off, but he did not think it was necessary to extract anything more, and he left the shop. On the 13th March, having been at work during the interval, the pain returned, and on the 15th March witness went to the defendant. He told the defendant what had happened, and the defendant broke off several pieces of the tooth with two different kinds of forceps. Defendant then used what, to him, looked like a sack needle, and after using that he felt that his jaw had been broken, and that he was entirely unnerved. He felt the point of the needle go through the jaw and come in contact with the upper part of his tongue. Mr. P. E. Wallis, his Club doctor, attended witness for some weeks after this. He remembered the defendant coming to see him on the 5th May, and the result of the interview was that he went to see Mr. Burt on the following day. Mr. Burt told him that at his own expense he would get him into a London hospital. Meeting the defendant in the town some days after, witness went to the defendant's house, and defendant took him to Mr. Harrison, surgeon, who suggested that he should go into the Cottage Hospital. This offer was refused by witness but ultimately he was admitted to Westminster Hospital, where he underwent two operations. A fortnight before Christmas he wrote to the defendant asking him if he could assist him in any way, but no notice was taken of the letter. Subsequently the defendant called and he referred the defendant to Mr. Whitley Hughes.

Cross-examined by Mr. Boxall: He went to the defendant after having been to Mr. Dixon because he was a "proper dentist." He did not tell the defendant that it was Mr. Dixon's assistant who had "mauled him about." He denied that anything was said while he was with the defendant about getting damages against Mr. Dixon—not at the defendant's house not at Mr. Harrison's. The sack needle, which he alleged was used, was not amongst the instruments produced.

Walter Henry Dixon, qualified chemist and a registered dentist, spoke to the defendant coming to him in January. The tooth was the first molar on the left jaw, and being decayed the crown broke off. He had never heard of a jaw being broken with forceps.

Cross-examined by Mr. Boxall: He was a qualified dentist taking his qualification before the year 1878. A qualified dentist now required a hospital training. It was frequently the case that the crowns of teeth were broken off and then the stumps were taken out at subsequent operations, if they gave pain.

Mrs. Fowle, wife of Mr. Fowle, watchmaker, spoke to seeing the defendant after the operation at Mr. Dixon's and also after the operation at the defendant's. After the former the plaintiff was in his usual health, but soon after his visit to the defendant he was very ill.

Cross-examined by Mr. Boxall: She did not recommend the plaintiff to the defendant.

Charles Bailey, who employed the plaintiff, said after the plaintiff had been to the defendant's he was half mad.

Cross-examined by Mr. Boxall: Plaintiff was his son-in-law. He looked into the plaintiff's mouth after the operation by Mr. Dixon just to see the place.

Mary Ann Medhurst said she was the mother of the plaintiff. After the visit of her son to Mr. Dixon he was as "right as rain," but after he had been to the defendant he was "a pretty object." She told defendant that he had broken her son's jawbone. He expressed surprise and did not know the name because her son's name was White.

Cross-examined by Mr. Boxall: She did not look in her son's mouth after the crown of the tooth was taken off by Mr. Dixon (laughter).

Mr. Percy E. Wallis, M.R.C.S., L.R.C.P., East Grinstead, said the plaintiff was in great pain when he came to him first. The jaw was firmly closed and he had a difficulty in getting it open. Plaintiff said his condition was the cause of Mr. Burt's carelessness. Witness removed several pieces of bone. The jaw was not broken through; it was splintered. If the plaintiff's description of the use of the elevator (described by the plaintiff as a sack needle) was correct it was certainly wrong. He had seen similar cases before, but he had not seen such a bad one.

Cross-examined by Mr. Boxall: From what he saw of the jawbone he did not think it implied negligence. He knew Mr. Burt was a qualified dentist, but did not know of his training. He could quite understand the plaintiff's description of the instrument used; a man of White's position would not know what sort of instrument was used. It would have been an extraordinary thing for a dentist to have forced an instrument right through the jawbone. The outer plate of the jaw only was broken.

Mr. James Swainson, house-surgeon at the Westminster Hospital, London, said the piece of dead bone was extracted at the Hospital, but asked as to his opinion as to the case being one of negligence or not witness said the evidence was not sufficiently precise for him to form an opinion.

Mr. James Harrison, M.R.C.S., L.R.C.P., East Grinstead, said the plaintiff was brought to him by defendant, and on examining the jaw it was his opinion that the jaw was fractured right through. He was told by the defendant that the case was Mr. Dixon's.

Cross-examined by Mr. Boxall: Witness was under the impression that White was present during the whole of witness's conversation with the defendant.

This was the case for the plaintiff, and Mr. Bloxall at once called the defendant, who said he had been house-surgeon at the Densal Hospital in London and had been at East Grinstead for five years. Previous to going to the Dental Hospital he had served his course of two years. He spoke of the visit of the plaintiff to him. He denied usiag an elevator at all. He only used scme dressing forceps to remove some little spiculæ of bone. As he picked them out some fœtid pus oozed out, and suspecting something very serious in consequence he advised the plaintiff to go and see his doctor. Plaintiff alleged then that he was not going to Mr. Wallis as he did him no good, and witness therefore took him to see Mr. Harrison. During the interviews with the plaintiff, plaintiff asked him if he thought he could get compensation out of Dixon.

Cross-examined by Mr. Hughes: He denied that he took plaintiff to Mr. Harrison because he saw the jaw was getting worse, but because plaintiff said he should not go and see Mr. Wallis again. He denied breaking a lady's jaw in East Grinstead, and as to a case of hemorrhage with a little girl that was quite a common occurrence.

This was all the evidence, and Mr. Boxall, addressing his Honour, contended that there was not sufficient evidence of negligence, and that there was no case.

Mr. Hughes having briefly addressed the Court, his Honour summed up. After reviewing the whole of the evidence, his Honour said no doubt the plaintiff had been injured, but which of the two dentists had done it? He was not trying the case against Mr. Dixon, and according to the evidence Mr. Dixon appeared to have known nothing of the case until quite recently. As to what Mr. Burt did, if he was correct, he did not appear to have performed any operation likely to cause any injury. The injury already existed, and all he did was to ascertain where the injury was. As to the evidence of the plaintiff the way that evidence was given was to him striking, because people who went to have a tooth out did not know exactly what did happen. In that case he did not think the plaintiff really knew what was being done, and the end of it was that action for negligence. He had carefully gone into the evidence and he was sorry for the plaintiff. who no doubt had suffered an injury by one of two persons, but who had not proved his case. He therefore gave a verdict for Mr. Burt.

The case lasted exactly three hours.

*Sussex Daily News.*

## THE VICTORIA DENTAL HOSPITAL.

The annual meeting in connection with the Victoria Dental Hospital, Devonshire Street, All Saints', was recently held at the Hospital, Mr. S. L. Helm presiding.

The hon. secretary (M. G. W. Gray) read the fourteenth annual report, in which the Committee of Management said that although the year had been uneventful the work of the institution had been of a highly satisfactory character. The appointment of two additional gentlemen of great experience as anæsthetists, and the extension of this particular branch of the hospital work from three to six days per week had proved an incalculable boon to a large number of poor sufferers. Notwithstanding the great increase in the number of patients and operations since 1884, the Committee pointed out that no corresponding increase had taken place in the amount of the annual subscriptions, by which means only it was possible to carry on the arduous work of the hospital in a manner compatible alike with its importance and the needs of this great city. The balance due to the treasurer amounted to £260 0s. 4d., and the Committee earnestly appealed for the needful assistance to enable them to discharge this large debt, which so seriously hampered the utility of the institution. The Dental Committee reported that the marked increase of work which took place during the previous year had been well maintained, and that there had been again a considerable increase in the number of operations. The facilities afforded patients of receiving anæsthetics daily instead of only on three days in the week had resulted in an increase of anæsthetic operations from 2,117 to 2,988. The large number of fillings inserted every year showed the value of the hospital in placing conservative operations within the reach of the poorest in the city. The summary of the work for the year showed that 7,057 adult and 3,131 children patients had been treated. Since the opening of the hospital to the 31st December, 1897, the total number of patients treated was 148,356.

The Chairman, in moving the adoption of the reports, pointed out that the institution was both a hospital and a school, and its work had continued to be large and useful. While the number of patients had been between 10,000 and 11,000, the operations had numbered over 15,000, and these would give an idea of the usefulness of the institution. The school played a very important part there. At present they had about twenty students, which was, he believed, the largest number that had attended the school, and it was gratifying to know that many students who had been studying there had turned out well at examinations. He regretted that the public had not given greater support to the institution.

Mr. F. W. Travers seconded the adoption of the reports, and the resolution was passed.

A vote of thanks to the Committee, members of the staff, and officers during the year was heartily accorded.

*Manchester Guardian.*

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## NEWTON ABBOT DENTIST'S CLAIM.

At Newton Abbot the adjourned case of the Dental Surgery, Newton, against G. J. Nickles, farmer, Ipplepen, claiming £10 10s. for a set of teeth, was before Judge Edge.

The case was adjourned from the last court to ascertain if the teeth would fit defendant.

Mr. J. Hutchings now appeared for defendant, who, he said, could not possibly wear the teeth. When he shut one side, the other side hopped out.

The Judge: That is equal distribution, but at irregular times. (Laughter).

His Honour said he took the view that defendant had acted very foolishly. He went to plaintiff for a set of teeth, and a model of his mouth was taken. When they were ready he was given notice, but, so far as plaintiff knew, defendant never attended to have them fitted. At the expiration of six months the teeth were sent to defendant by registered letter, and he kept them for two years, and had them in his pocket at the last court. His own knowledge of such things taught him that persons' gums altered as they got older, and altered in a short time sometimes. Consequently it was not likely the teeth would fit him now. He had thought possibly they might have been made to fit defendant, as he did not want him to pay £10 10s. for teeth to carry in his pocket. (Laughter).

Plaintiff said the teeth would have to be remade before they fitted. They would cause discomfort.

The Judge: Artificial teeth cause discomfort at the best of times, many of us would probably say. Defendant would have to pay the £10 10s. and costs.

*Western Dental News.*

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At the Newcastle County Court recently, a married man was sued for a set of false teeth. The defendant said the teeth were got by his wife before he married her. This the plaintiff did not deny, but he said when a man married a woman, he did not marry her debts. His Honour disabused his mind of such an idea, and gave judgment for the defendant. Plaintiff left the box, saying it was very hard.

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## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
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# THE SULPHO-CYANIDE OF POTASSIUM IN SALIVA.*

By H. L. Albert.

The methods hitherto employed in the quantitative analysis of the sulpho-cyanide of potassium in saliva are extremely laborious. With the help and at the suggestion of my friend and colleague, Dr. Buckmaster, I have devised an apparatus by which its amount can be estimated with the greatest ease and in a few minutes only. In the hope it may help in unveiling the mystery of the origin, physiological and pathological significance of this characteristic salivary salt, I venture to bring it to your notice this evening.

I would like to introduce the subject with a brief *resume* of the little that is known about it.

Treviranus† was the first to notice the deep red colour produced by the neutral ferric perchloride when mixed with saliva. This was in 1814. In 1826 Tiedemann and Gmelin proved that the colour was due to the formation of the iron sulpho-cyanide.

Jacubowitsch‡ says it exists in mixed saliva in the proportion of ·006 per cent., Frerichs in the proportion of ·01, Lehmann in the proportion of ·0064 to ·009, whilst Wright§

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* Read before the Odontological Society of Great Britain.

† Biology, iv., p. 565.

‡ "De Saliva": Inaugural Address. Dorpat.

§ *Lancet*, 1842, "Physiology and Pathology of Saliva."

states it to be as high as ·51 to ·98 per cent.; the latter observer was, however, faulty in his method of analysis.

Its amount is said to vary in the secretions of the individual glands; thus, in the parotid of man Mitscherlisch[*] and Oehl state it to be ·03 per cent. Maly found traces of it in the submaxillary, and Longet discovered a little only in the sublingual.

Oehl[†] attempted a colourimetric estimation with solutions of iron.

Mitscherlisch, Jacubowitsch and Gmelin found it in the parotid of man, dog, horse and sheep, though Lehmann states that it does not exist in that of the horse.

Schiff says it is a decomposition product, and that by keeping saliva for from twenty minutes to half an hour the iron reaction is better seen. I think from my own observation I can dispute this.

According to Munk[‡] and Gscheidlen,[§] the salt is constantly found in urine. Musso[‖] found it in milk, and Leared[¶] in the blood. Munk and Gscheidlen found it in the urine of man, horse, dog, horse, cat and rabbit. It is believed by these observers that the salt is absorbed into the blood and constantly removed by the kidneys, since it has not been discovered in the fæces. In urine, however, it exists only in very small quantities, the amount being from ·059 gramme[**] to ·08 gramme[††] in 1000 cc.

Sheridan Lea[†‡] says it occurs only in the urine of those animals who excrete their nitrogen chiefly in the form of urea.

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[*] *Poggendorff's Annalen*, vol. xxvii., 1848.

[†] *Canstatt's Jahresbericht*, p. cxv., 1865.

[‡] *Vircdow's Archiv*, vol. lxx.

[§] *Pflüger's Archiv*, vol. xiv.

[‖] *Bericht für Phys. Chem.*, 1877.

[¶] *Proceedings of the Royal Society*, vol. xviii.

[**] Gscheidlen.

[††] Munk.

[†‡] "Chemical Basis of the Human Body," p. 168.

Heidenhain and Gscheidlen cut the ducts of all the salivary glands in dogs and formed salivary fistulæ. A total absence of the salt was found in the blood and urine, whilst the mixed saliva collected from the ducts contained it.

Carpenter*, on the authority of Harley and Longet, says that the salt is absent in the herbivora.

Claude Bernard† considers its presence to be due to carious teeth and tobacco smoking.

Lauder Brunton ‡ states that in the mollusca it diminishes reflex actions and quickens the heart-beats, large doses arresting the heart in diastole.

Mons. Chouppé, experimenting on plants, found saliva fatal to vegetable life. and attributed this to the contained sulpho cyanide; and Hugenschmidt§ states it to have a distinctly bactericidal property.

Frerichs, Wöhler and others consider it to be non-poisonous in moderate doses. Dr. Florain,‖ in a paper read before a congress held in Paris in 1889, said though fatal to vegetable life it had no action on animals except in excessive doses.

I have tried the ingestion of pure potassium sulphc-cyanide in four rabbits, the amount used being between one and two grammes mixed with about ten of bran a day. In every case death resulted in about a week. The symptoms produced were alike, viz., emaciation and loss of hair. In two a marked atrophy of the salivary glands was found, and in one of these, after dipping in a solution of ferric perchloride, a microscopic examination was made, the ducts being found more deeply stained than the gland tissue. In all four large quantities were found in the urine and fæces, in fact the drug seemed to permeate, as far as one was able to judge, every organ and tissue, and to find its way in every secretion and excretion, even to the cerebro-spinal fluid. The emaciation was the most marked feature, bearing as it does on the statement of Dr. Fenwick, that the elimination—if it be an elimination—of the sulpho-cyanide by the salivary glands, is a measure of nutrition occurring in largest quantities in the saliva of those who are well nourished, and *vice versa.* I can from the observation of some few cases confirm this. I should say the emaciation in the rabbits was undoubtedly dependent on the ingestion of the drug, the normal quantity of bran being eaten.

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* "Human Physiology," 9th edition, p. 134.

† Bernard, "Leçons sur les Propriétés physiologiques," vol. ii. 1859.

‡ "Pharmacology," 3rd edition, p. 114.

§ *Pasteur Ann.*, 96, tome x.

‖ *Brit. Jour. Dent. Sci.*, 1890.

Of the pathological significance Dr. Fenwick, in some lectures on functional diseases of the liver, quoted in the *Lancet* of 1887, points out that those diseases where nutritive efforts are called forth are invariably accompanied by an increase of sulpho-cyanide, and further states that for its appearance in the saliva the bile must enter the duodenum. He adds that as the two are so closely associated it is obvious that the salt owes its origin to some action of the hepatic cells. Dr. Fenwick's means of analysis consisted roughly of a series of shades of colour produced by the admixture of a known quantity of the tincture of the perchloride of iron in graduated solutions of the salt, the normal colour being obtained by a comparison of the saliva of those whose appearance and history seemed to indicate a normal condition of health. The objections to this method are that the standards of comparison, being fluid, faded after a few weeks; and the tincture of iron, probably owing to the evaporation of the spirit, did not remain at a uniform strength. Dr. Fenwick made no attempt at a quantitative estimate.

Assuming it possible to construct some permanent means of measuring the amount of the salt in saliva it was obviously necessary to avoid these sources of fallacy, hence comparison with coloured fluids was discarded. On the suggestion of

Dr. Buckmaster, it was thought likely we could adapt Oliver's hæmoglobinometer to our purpose. This instrument, the outcome of much labour and thought, is a means whereby the quantity of hæmoglobin is found by contrasting solutions of blood with graded red glasses, each of which corresponds to a known percentage of hæmoglobin.

Resolving then to use unfading coloured glass instead of fading coloured fluid as a means of comparison, it was necessary at starting to try the tests for the salt, in order to ascertain which was simplest and which gave the best colour. These tests are :—

(1) The perchloride, discovered by Treviranus, consisting of the production of a blood-red colour on the addition of ferric perchloride, not discharged by hydrochloric acid but disappearing on the addition of corrosive sublimate, thus differing on the one hand from the acetates and formates, and on the other from the meconates.

(2) Böttger's test, discovered in 1872. Filter paper, soaked in tincture of guaiacum, dried and drawn through a 1 in 2,000 solution of copper sulphate, becomes blue when treated with saliva containing potassium sulpho-cyanide.

(3) Solera's, quoted in the *London Medical Record* of 1878, based on the power of saliva of reducing iodic acid. When a weak solution of potassium sulpho-cyanide is mixed with iodic acid it becomes yellow, owing to the liberation of iodine. The test is rendered more sensitive if starch paste is used, the blue colouration produced by the iodine being more easy to recognise than the delicate tints of the yellow. Solera claims such delicacy for it that he can detect ·000004 gramm e

Of these three tests the guaiacum was discarded, it being found necessary to make fresh preparations of that drug so frequently. The perchloride test was chosen, on account of its simplicity and sensitiveness, it being at least as delicate as Solera's.

I decided then to use the red colour of the iron reaction, and the next stage in the experiments was to obtain a colour with a solution of the sulpho-cyanide of the same strength in which it occurs in normal saliva. This normal amount was based on the mean of Frerich's estimate of from ·01 to ·006 per cent.

To a ·008 solution of sulpho-cyanide, therefore, liquor ferri perchloride was added and sent to Lovibond's Colour Laboratories, Salisbury, in order to have the colour reproduced in glass. In due course they were returned and the colours were found to be entirely matched. It was at once obvious that by a series of graduated red glasses of the same shade as known strengths of sulpho-cyanide solutions to which iron had been added, it would be possible to easily read off the percentage quantity of the salt in different salivas. It was only in the details of the experiments that any difficulties arose; of these the most serious was overcome by my colleague, Dr. Slater. Potassium sulpho-cyanide being so extremely hygroscopic it was found impossible to make up an accurate solution in the ordinary way. Dr. Slater kindly made one, by a titration process, so accurate as to come almost within Frerich's variations of the normal. The solution was subsequently tested by Dr. Gardner, the lecturer on chemistry and physics at St. George's, and found practically correct, the exact strength being ·01028 per cent. Not caring to trust to either the tincture of iron or the strong liquor, some trials were made with solutions of the neutral perchloride in order to ascertain the amount necessary to produce the best colour when mixed with the normal solution of the sulpho-cyanide. Some difficulty in weighing the iron occurred owing to its extreme deliquescence. After man trials a 50 per cent. solution was found to suit our purpose best.

Before proceeding further I would like to give a short account of the principle upon which the measurement is based. As, however, it has been so exhaustively described by Oliver in the Croonian Lecture of 1895 no more than a mere abstract is necessary. The colour metric system is used in various ways as a means of quantitative estimation with the aid of colour. Lovibond, the inventor, has fixed an arbitrary and equivalent unit in glass tinted in the three primary colours, the equivalence of the unit being established by the fact that when the corresponding units of the three primary colours are superposed, the colour of each is destroyed, a neutral tint resulting. It is most interesting to note the total abolition of colour produced by the superposition of even the lightest shades of the dominent colours. The latter are subdivided into shades and arbitrarily numbered in series, the shade of any colour corresponding to the number of the shade of the other two colours. There are necessarily more light shades than dark ones, the human retina only being able to see minute distinctions of colour in light shades. For matching and testing experts are employed.

The chart is a diagrammatic representation of the colours of known solutions of given quantities of sulpho-cyanide, to which a fixed amount of a 50 per cent. solution of neutral ferric perchloride has been added. It is called the "specific colour curve." The numbers below the base line are the percentage amounts of sulpho-cyanide sent for examination, whilst those on the left correspond to Lovibond's own standard of colour. The curve itself is formed by a line uniting the points where the colours of Lovibond's units cross the lines of the sulpho-cyanide solutions. It will be seen, on looking at the chart, that in the weaker solutions of the salt yellow only is discernible, in the medium solutions orange enters into its composition, whilst in the strong mixtures red only is present, the orange and yellow of the weaker solutions being totally disguised. The small numbers on the coloured lines indicate the numbers of the coloured units entering into their composition.

Having thus an unvarying and fixed means of quantitative examination at our disposal, it only remains to construct a graduated series of shades of red corresponding to the varying percentage of the salt in saliva, as evidenced by the depth of colour produced by the iron reaction, and to make the method of examination itself unvarying. This gave rise to some difficulty for the following reasons :—

(1) Saliva, until it has been standing some time, has a decided colour of its own. Obviously if it were to be compared with coloured glass representing known strengths of sulpho-cyanide, its own inherent tint must be abolished or else that tint must be added to the red of the sulpho-cyanide. Its air bubbles and viscidity, too, were at first a disadvantage to quick work.

(2) Given a clear watery saliva it was necessary to use for each examination the same amount.

(3) To be perfectly uniform, it was of course necessary to use an unvarying light, the changing tones of a London atmosphere being useless.

(4) It was necessary to determine the gradations of the scale to be used.

(5) It was necessary to fix the amount of the 50 per cent. iron solution to be used ; and

(6) To construct a convenient cell to hold the saliva.

(1) The viscidity of the saliva was easily overcome and its colour and air bubbles destroyed by the addition of glacial acetic acid. Saliva thus treated yielded the same reaction with iron as saliva to which no acid had been added. The proportion of acid employed is 1 in 3.

(2) It was obviously a matter of indifference what quantity of saliva was examined, so long as the same amount was used for each examination. We decided on 2 cc. of the mixed acid and saliva.

(3) The light difficulty was overcome by adopting Oliver's practical suggestion of using double transmission. It was found, as stated also by Oliver, that reflected light showed a deeper colour than singly transmitted light. That of an ordinary candle was employed, the reflecting surface being placed under the cell holding the saliva.

(4) The scale was made to consist of intervals corresponding to an increase or decrease of ·0025 per cent. with the exception of the two lowest shades. Of these one corresponds to a mixture of distilled water and glacial acetic acid in the proportion of 1 in 3, to which ·045 cc. of the iron solution is added. This was of course necessary in order to be able to detect the entire absence of the salt. The other low shade was put in the scale to enable us to detect a mere trace, and corresponds to a ·0001 per cent. solution of the sulphocyanide. The scale will thus tell three degrees of increase, the normal, four degrees of decrease and the entire absence of the salt, the readings being, in order, zero, ·0025, ·005, ·0075, ·001, or normal, ·0125, ·015 and ·0175 per cent. Besides these definite gradations, quarter, half, and three-quarter shades of the intervals were prepared.

(5) The amount of the 50 per cent. solution of the neutral ferric perchloride necessary for each examination is only ·045 cc. The quantity used is more than a hundred times as much as is necessary to combine with the maximal quantity of the salt that has ever met with in saliva.

(6) A cell was made to hold 2 cc. It was constructed of black vulcanite, the colour used not imparting any additional tinge to the contained fluid, and the acetic acid having no chemical action on it. In consequence of using reflected

light it had to be placed on an opaque base, and a base of an absolutely colourless nature. The hydrated sulphate of lime, used by Lovibond for this purpose, was employed. The cell and lime were then cemented on to an oblong piece of glass in order to make it convenient for handling.

Having thus made the requisite colour standards and settled all the details, it was only necessary to send the former to Lovibond's Colour Laboratories at Salisbury to have the colours matched in glass. They were reproduced so perfectly accurately that no trained eye even could detect the slightest difference. The glasses are mounted in series in a convenient form for handling. The colours of the quarter, half and three-quarter shades were also made. They are, however, only approximately correct, as, curiously enough, though the intervals in the strength of the sulpho-cyanide are practically uniform, it was found that the colour of the fractions of each did not quite correspond. I think, however, they are near enough for all practical purposes. Perfect accuracy could be obtained by having specially prepared glasses made for each interval, but, as it would add to the cumbersomeness of the apparatus—a consideration where clinical investigations is aimed at—and also greatly increase the expense, it was not thought worth while to do this. The glasses corresponding to the fractions are called riders.

The complete apparatus consists of: (*a*) test tube, fitted to economise space, over (*b*) centimetre measure : (*c*) scale of colours ; (*d*) cell ; (*e*) cover glasses ; (*f*) pipette for measuring the iron ; (*g*) camera tube for contrasting the colours ; (*h*) riders. For clinical work they are packed in a small case, in which room is found for the candles. Besides these, for laboratory work it is as well to have a metal camera tube on a stand. I have had a miniature dark room made and painted black, to exclude all light but that of the candle placed within it. At the lower aperture of the camera two holes are perforated, under one of which is placed the saliva to be examined and under the other the colour standard with which it is to be contrasted. To one side of the upper aperture a piece of green glass is attached for the purpose of rendering the retina more sensitive to red light should the eye become fatigued.

The method of using the instrument: Some saliva is first collected in a test tube and 2 cc. poured into the centimetre measure. By this little manœuvre the air bubbles are retained in the test tube. To this 1 cc. of glacial acetic acid is added and shaken a little to ensure complete mixing. Next the ·045 cc. of iron is taken up and mixed with the acid and saliva, it being necessary to pass them two or three times up the tube of the pipette to make certain all the iron is added. The cell is then filled from the centimetre and a cover glass—which, by the way, is absolutely colourless—placed on top. If the cell is accurately filled to 2 cc. a small air bubble will be seen on the surface of the fluid. It is then placed under one hole of the camera, and the standard with which it apparently corresponds placed under the other. The candle is then lit and placed in such a position as to equally illuminate the surfaces of both saliva and standard. If the two colours correspond the amount of the sulpho-cyanide is at once known. If they do not, it is only necessary to shift the standards till one is found of the same shade. Should none be found to exactly match, the riders are brought into use, taking care that for every rider employed an additional cover glass be placed on the cell in order to equalise the reflecting surfaces.

Of what use the instrument may be remains to be seen. I have worked with it enough to be unable to confirm Schiff's statement that the sulpho-cyanide increases in saliva that is kept a few hours, owing to decomposition of the fluid. I can also say its existence does not in any way depend either on the presence of carious teeth or on the use or non-use of tobacco.

# DENTAL MECHANICS.

By Harry Rose, L.D.S., Eng.

## Part IV.—Appliances and Devices for the Correction of Dental Irregularities.

(*Continued from page* 7.)

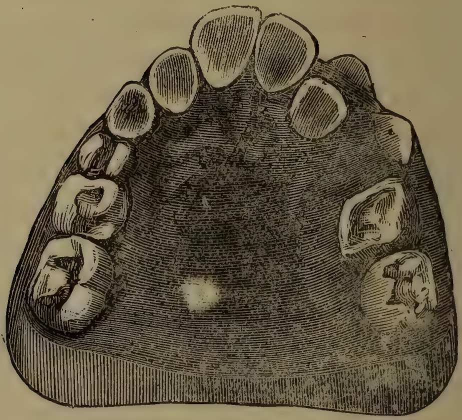

Fig. 36.

Fig. 36 is an illustration of a not uncommon form of irregularity. In this case, owing to the crowded state of the mouth, and the broken down condition of the lower seven year old molars, symmetrical extraction was decided on, but before losing the teeth it was seen that they could be made of considerable use, not only as attachments or supports to the plate, but also as anchorages, more especially the one on the left side, from which to apply force to draw back the bicuspids and canine tooth.

On looking at the diagram it will be seen that the two second temporary molars are in position; these were removed. By their removal we gained a space equal to a third of their size on each side, or in other words the second bicuspids which erupt beneath them, are about that amount smaller, this gives us some room which, in normal mouths, is sufficient for our wants, but in this case it was not.

An impression of the mouth was then taken and the model cast. Fig. 37 is a side view of the case, and it shows the left lateral within the arch, and locked by the lower canine. The upper canine is in front of, and slightly anterior to the lateral, and the first bicuspid practically occupies the place of the canine.

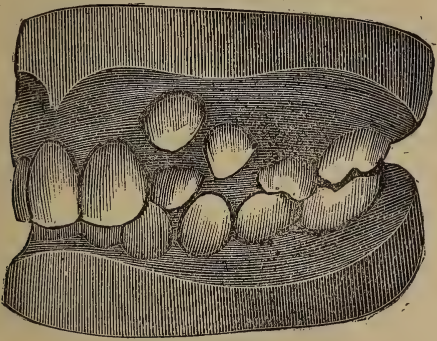

Fig. 37.

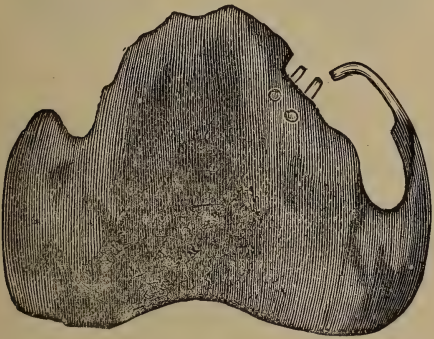

Fig. 38.

A vulcanite plate was first made to raise the bite, and a piece of spring gold was vulcanised in, and bent so as to bring pressure and some slight amount of traction on the canine. A peg was next inserted to act on the lateral, and so press it into its proper place.

The action of these two forces was sufficient in a few days to push the lateral outside the lower tooth, and to bring the canine against the bicuspid.

It was now resolved to make another plate, and to use pegs to accomplish the remainder of the work, as their action on the small portion of visible tooth was more certain than a spring. Fig. 39 is an illustration of the second plate made. A small peg was first of all inserted in it, to act on the bicuspid and press it backwards; this it did most effectually. Next this portion of the plate was filed away and a peg inserted to act on the canine; this peg is shewn in the figure. The front, or labial portion of the plate was made thin and light and its elasticity acting on the peg was sufficient in a very short time to bring the tooth into the position as seen in Fig. 40.

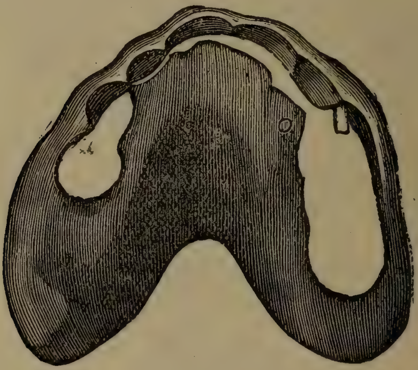

Fig. 39.

Having thus made all the use we could of the first permanent molars, they were then extracted, and Nature was left to do the rest, the plate being used as a retention plate. The action of the peg against the canine had one good effect that was not foreseen. Before commencing the work the two central teeth had a decided bias, or leaning over to the left side; after the operation I was pleased to find that they were perfectly straight. This, of course, was due to the pressure excited in forcing back the canine, and was an advantage one had not anticipated.

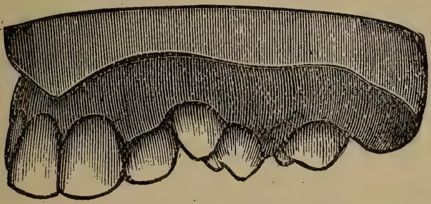

Fig. 40.

(*To be continued.*)

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Tr. Myrrh et Boracis.—The following recipe gives a bright and satisfactory preparation:

| | |
|---|---|
| Tr. myrrh ... ... | ℥x. |
| Tr. pyrethri ... ... | ʒj. |
| Tr. krameriæ ... ... | ℥j. |
| Tr. aurant ... ... | ℥j. |
| Tr. lavand. co. ... ... | ℥j. |
| Aq. coloniensis ... ... | ℥v. |
| Glycerin boracis ... ... | ℥iiss. |
| Glycerin. ... ... | ℥iiss. |

Mix.

If this is allowed to stand the bright liquor may be poured off without filtering.

British Journal of Dental Science.

LONDON, MARCH 15, 1898.

## THE TREATMENT OF THE DENTAL PULP.

We are all agreed upon one point, namely, that when the pulp of a tooth can be preserved in a normal condition, it is the best possible thing to do. If that can be done there is no danger of the tooth becoming discoloured or opaque, as is the case often with devitalized teeth in spite of careful treatment, there is no danger of alveolar abscess, the tooth is less brittle and perhaps less liable to absorption and caries. With all these advantages in favour of preserving the pulp, we ought to exercise great care before proceeding to destroy it. But in our daily work we are continually seeing cases in which the pulp has departed from the normal, chiefly through caries. Patients come to us complaining of pain which we find no difficulty in immediately diagnosing as pulpitis. The degree varies considerably, some patients only complain of occasional neuralgic pains, and cannot localise the tooth; others come suffering acutely, feel the pain most at its focus, and the pulpitis is aggravated by periostitis. How far are we justified in attempting to preserve more or less inflamed pulps, and when are we right in devitalizing?

Inflammation of the pulp is accompanied by swelling of that organ due to increased flow of blood to the part. As the pulp cannot swell to any extent, owing to its being surrounded by the dentine, the nerve endings become compressed and pain is the result. If an inflamed pulp is freely exposed and allowed to bleed, the swelling subsides, and relief from pain follows. This often occurs naturally, and we often see exposed pulps which in a protected position remain for a long period in a painless condition. If when the pain and inflammation subside, the pulp is capped under aseptic conditions, the tooth may remain quiescent for a longer or shorter time. It depends to a great extent upon the age and physique of the patient whether this method of procedure is successful or not. In young and healthy subjects we may have a formation of secondary dentine forming a natural protection under a suitable stopping. Weak, strumous, and cachectic subjects are not successful ones for this operation, and devitalization should be resorted to. In temporary teeth and permanent teeth when there is reason to suppose calcification of the apex is not yet complete, it is advisable to try and preserve the pulp as far as possible. The use of counter-irritants to the gum, and, in severe cases, the application of leeches have been found of benefit. There is a form of pulpitis often occurring under a metal filling without there having been any actual exposure, accompanied by a large formation of secondary dentine. In these cases we may find almost the whole of the pulp calcified, while the remaining uncalcified portion is inflamed and causes acute suffering. This state of things is generally caused by long continued irritation of the pulp caused by thermal changes conducted to the pulp through the metal. In these cases the only remedy is to drill out the secondary dentine and apply arsenious acid. Very often repeated dressings with the devitalizer are requisite, and further removal of the dentine is necessary before perfect relief is obtained. In some cases this formation of secondary dentine occurs in perfectly sound teeth in comparatively young subjects, and we have at least one case in mind in which it occurred to such an extent that permanent relief from pain was only experienced after the loss of all the teeth. The pulp cavities in this case were found to be calcified almost up to the apex.

In all cases of pulp-capping it must be borne in mind that the necessity of devitalization may occur sooner or later. Sometimes it occurs very soon, and if a patient who is going for a voyage, or who cannot obtain dental assistance presents himself, it is wiser to devitalize rather than run any risks of toothache occurring under such disadvantageous circumstances. Sometimes death of the pulp occurs spontaneously and painlessly, the first intimation being when periostitis or alveolar abscess supervenes. We can never say that pulp-capping is a perfect success until some years have elapsed, and we consider that those who claim immediate results for any remedy are acting hastily. Things may go on well for a time, until perhaps through a cold, or some cause which reduces vitality, the trouble re-asserts itself. Secondary dentine though a protection may, if it proceed too far become an evil. Traumatic exposures without pain are undoubtedly amenable to prompt treatment, but our opinion is that when pulpitis has proceeded to any extent, the operation of pulp-capping must not be regarded as absolutely final.

THE TOOTH-BRUSH MISSION.—The *Pall Mall Gazette* relates how a short time back, two individuals named Charles Couillet and Emile Reisser, were detained at the prison of Poissy. When they entered within the gates of captivity these men had each his own trade ; one was a plumber, one a mechanical dentist. When they came out they had been taught a new and lucrative calling—namely, the manufacture of tooth-brushes. Therefore, Messrs. Couillet and Reisser decided to establish a tooth-brush Mission in the Belleville Quarter. It is the home of labour, often of want; it rises in haste and begins the search after food in the early hours of the morning. So there the two reformers stationed themselves with a stock of 6,000 tooth-brushes, all going for twopence each "in the interest of the working classes." The price, however, seemed so cheap, "too cheap," said the police, who had their suspicions. They arrested the Tooth-Brush Mission with all its stock-in-trade, and found that the great supply had beeen stolen from M. Chantepie, wholesale manufacturer of the same. Alas for the teeth of Belleville! In spite of this premium upon sweetness and light, only five brushes had been sold.

The Burglar's Friend.—At a recent Dental meeting at Warrington, Mr. Fletcher's large works were visited. The party naturally examined with curiosity and pleasure the Dental Appliances and Furnaces for gold, etc. melting. The effective nature of the furnaces was demonstrated, and an oxygen blowpipe pierced a flame through a bar of cast iron and also steel in a very limited time. Mr. Fletcher explaining that he could drive it through any safe. The rapid heating of bars was also shown, and it was stated that the firm's patents were being largely used in the South African goldfields, three pints of crude petroleum being sufficient to heat 300 inch mining bars in an hour.

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Dental Hospital of London.—The Bishop of London, one of its vice-presidents, has consented to preside at the annual general meeting of Governors of the Dental Hospital of London, to be held at the Hospital, Leicester Square, on Thursday, March 17, at 5.30.

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Is a Dead Tooth more Firmly Fixed than a Living One?—"The colour of a tooth is not altered by the death of the pulp if the *debris* is all removed, and it is properly filled before the discolouration takes place. It remains a useful and ornamental part of the human organism, and if anything it is more adherent and firmly fixed in its socket than if the pulp were alive." So says Dr. Claude in the *Cosmos*, but our experience differs from his. Sometimes an isolated dead tooth is difficult to detach from the surrounding gum when being extracted, but to say that it is as a rule more firmly fixed in its socket we consider is incorrect. In fact, one of the points of diagnosis in a dead tooth is recession of the gum and loosening.

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The Action of Saliva on Bacteria.—Dr. Triolo, of Naples, has been investigating the above subject by new methods. Having first thoroughly disinfected the mouth with corrosive sublimate 1 in 1000 or permanganate of potash and then washed out with distilled water until no trace of the germicide could be detected, the saliva was taken fresh from the mouth, and its effect observed on various germ cultures. The result showed that the saliva possessed decided bactericidal properties, killing old cultures (five days) and diminishing the number of recent ones (eighteen hours). Saliva filtered (as in Sanarelli's experiments) has very little germicidal action. Very little difference was observed between parotid and submaxillary saliva as regards their action on germs. Indeed, the author believes that the chief germicidal action of the saliva must be attributed to the secretion of the muciparous glands of the mouth.

A DENTAL VACANCY.—At the Chelsea Hospital for Women, Fulham, S.W., the post of Dental Surgeon is vacant. Candidates, who must be Fellows or Members of one of the Colleges of Surgeons of England, Edinburgh, or Ireland, are required to send in their applications, with testimonials to Herbert H. Jennings, Secretary, by Thursday, March 31st.

DIAGNOSIS OF EMPYEMA OF THE ANTRUM BY THE ELECTRIC LAMP.—Dr. Stevenson in a letter to the *British Medical Journal* relates an interesting case of suspected empyema of the antrum, which had been under treatment for three months without benefit, and which was brought to him for examination with the electric lamp which he has constructed, and which he described in the *British Medical Journal* of February 8th, 1890.

All the ordinary signs of chronic empyema, including purulent discharge from the nostril, neuralgia, and consequent exhaustion, existed. The state of the teeth gave no clue to this condition of things, although two diseased bicuspids had been recently extracted on account of it.

When the 5 candle lamp was used he was surprised to find that its rays were equally distributed through each orbit; it was therefore evident there was nothing wrong in the antrum. The difficulty was now to account for the symptoms. The second molar had been occasionally tender on pressure; he therefore determined to extract it. In doing so, however, the third molar and all the alveolar process, with the surrounding tissues, came away in one mass, so that there was difficulty in finally removing them. A day or two afterwards the symptoms had all disappeared, and in a week the patient was well.

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An Elephant with the Toothache.—*Tit-Bits* is responsible for the following:—"An elephant in Bengal, India, became affected with toothache, but the keepers managed to secure it while a dentist drew a decayed tooth—the cause of the trouble. After a time the elephant seemed to understand that the dentist was trying to do something for his pain, and he gave every evidence of appreciating the attention. When the operation was over he frisked round the dentist like a young lamb." Those who are aware of the size of an elephant's tooth will wonder how the dentist did it!

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Nurses and Patients' Teeth.—The *Hospital*, in a series of post-graduate lectures for nurses, mentions among other things, the importance of keeping the mouths of their patients in good condition. It remarks: "The condition of the mouth and throat is most important, since the hygienic condition of these materially affects the feeding of the patient. An admirable mouth wash consists of glycerine, lemon juice, rose water, and chlorate of potash solution in equal proportions. Boro-glyceride diluted with water may be used for the tongue and throat, applied with a soft brush or feather." We think the mouth wash formula capable of improvement, and we cannot think why no mention of the tooth-brush is made, but we are glad the subject is brought before the notice of the nursing Sisterhood as irremediable dental mischief often occurs during illness.

A LETTER FROM AN UNREGISTERED PRACTITIONER.—It is our rule to take no notice of anonymous letters, but we will make an exception to reply to a correspondent who writes to us under the (to him) illegal title of "Dentist." His chief complaint seems to be that having paid one hundred pounds to learn the profession "both operating and workroom," he is not on the Register as well as "the so-called Surgeon-Dentists who paid five pounds to be on the Register." He also says, "We unregistered quacks, as you call us, are as good as the majority of Surgeon-Dentists so-called." In reply to our correspondent we wish to say that if he had the opportunity of registering and did not, he has only himself to blame if the door is shut at last. The fact that he paid a premium or not, has nothing to do with it. There is no doubt that many men were placed on the Register who had no right to be there, but their being in the wrong does not put our correspondent in the right.

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THE HOMING INSTINCT IN ANIMALS.—An interesting paper by James Weir, entitled "The Sixth Sense," treats of the remarkable "homing" instinct which is so marked in many animals, and far from being confined, as is popularly supposed to the more highly developed vertebrates, is found by the author to be possessed in a very high degree by creatures so low down the scale as the *Mollusca*. Last summer he marked six snails with a distinctive paint and removed them some distance from their home. In the course of time four reappeared in the accustomed haunt, the other two having probably become the prey of predatory blackbirds. Some beetles have the homing instinct highly developed, notably the blind beetle, *Adelops*, of the Mammoth caves, which when unmolested will rarely stir more than sixty feet from its home. If carried away by force it will immediately commence its homeward journey in an undeviating line. That the domestic animals possess the same sense in a greater or less degree is a matter of common knowledge. Experiments with the lower forms are comparatively easy to conduct, and will probably afford some interesting results.

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An Urgent Case.—*L'Odontologie* indulges in a joke or two occasionally in its last page, perhaps as a reward to its readers for consuming the more solid fare. A patient is supposed to call on the dentist on a Sunday, and is told by the servant that her master is never there on that day. The patient falls into a great rage, and says that it is most inhuman conduct when he is in such agony. The sympathetic servant says that he seems to be in great pain and enquires how long he has endured it. The patient replies, "Since last Monday!"

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Antiseptic Tooth-powder.—

| | |
|---|---|
| Ac. carbol. | mxx. |
| Ol. bergam. | ʒss. |
| Pulv. iridis | ℥j. |
| Cretæ precip ad | ℥iv. |

Mix.

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The following question and answer occurs in the *British Medical Journal* :—

### The Administration of Anæsthetics.

A correspondent inquires if a dentist has the right to administer gas to a patient without the presence of a qualified medical man.

⁂ We are not aware of any legal decision on this point, and it is one on which there may be some diversity of opinion. We think, however, that a dentist not poesessing a medical qualification must incur serious responsibility if he administers anæsthetics. He would, we think, have no more right than a layman in this respect, and would be in the same position.

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Cement for Inlays.—Use fairly quick setting cement for inlays and be sure and mix it thin.—*F. J. Ross, Dominion.*

# Abstracts of British & Foreign Journals.

## JUDGMENT IN CHOOSING METHODS AND MATERIAL AS ESSENTIAL AS THE OPERATION ITSELF.

Up to the time of the introduction of rubber for the manufacture of artificial dentures, gold was used almost exclusively as a base for plate work. Rubber being less expensive and much easier to manipulate, it almost supplanted the use of metals for this purpose. Since the theorist's discoveries of the immense inroads made by the innumerable armies of bacteria in the pathological conditions of the tissues of the oral cavity, and since the powerful lenses of the microscope have proved the pores of the rubber to be but the many multiplied homes of this great enemy to health, the question is frequently asked, "Has the introduction of the rubber plate been a blessing or a curse to the dental profession and its patrons?" Following close on this query and the feeling of dissatisfaction with the experience of many years with rubber as a plate material, comes the introduction of bridge-work, which, for a while, withstood the criticism of the profession, until at last the cry now comes from many quarters, "Too much bridge-work."

What conclusion, then, must we reach as to what is the best that can be done for those of our patients who have been so unfortunate as to lose one or more teeth?

If you will trace the history of the different methods, materials and remedies used for any length of time by the dental profession, you will most likely conclude that at the time such methods, etc., are carried to extreme use, is the time they are criticised most severely. While it may be true that by going to extremes we can sometimes better find the fallacies and errors that have been misleading; at the same time, in seeing the error we should not overlook the good that a happy medium might bring. Rubber plates have unquestionably been a great blessing; not, however, by supplanting entirely the use of gold plates. Bridge-work has and is being done with much credit to the dentist and much comfort to the patient, but should never reach that point that it will be a universal substitute for partial plates.

Often you have seen from four to six perfectly shaped teeth, with possibly no signs of decay, mutilated with corundum wheels and disks, to be used as piers or supports for bridges, which give promise of service for from three to five years, when a partial plate made of gold would have been infinitely better, and would have given more comfort and service to the patient. Take, to illustrate, the following case calling for an upper partial plate, or two or three bridges: Teeth missing, right central, left first and second bicuspids, and right first molar; all of the adjoining teeth that might be used as piers for bridge work in fairly good condition. Under the conditions stated, would it not be better to make a neat-fitting, good plate, than to bridge the three spaces?

It must be evident that in trying to arrive at the best that can be done for those demanding our professional services, that in addition to the various methods and abundance of material at our disposal, we must use a sufficient amount of common-sense, backed up by good judgment.

One of the hopeful signs of progress in our profession is the fact that we are learning to grasp "the new" without discarding "the old." The practical, common-sense, progressive dentist of the present age will have in his cabinet of materials new and old remedies. He will have soft, cohesive and crystal gold. He will make gold, rubber or celluloid plates, or bridge-work, as the case calls for. He is wedded to no one idea, method or material to that extent that he does not see good in others.

*H. R. J. in Dental Weekly.*

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## METAL *versus* RUBBER.

### By Dr. PERRY, Chicago.

Let us briefly consider a few points of advantage which lie in the way of say gold for partial sets, or continuous gums for full plate. No one who ever wrote on the subject but emphasizes the fact that a plate covering the tissues for the purpose of carrying artificial teeth should be a good conductor of thermal changes. Here, then, rubber is contraindicated. Gold, platinum or porcelain therefore are indicated. The material of the plate should also possess the greatest possible strength in the least possible space. Again, rubber fails to fill the requirements of the case, the metals do not. The material of the plate should also be pure and non-oxidizable. Here rubber fails also and twenty carat gold highly finished and triple plated for the partial set and pure platinum and porcelain for the full fill all the requirements of the case to perfection. In continuous gum work the artist has the largest possible liberty in the arrangement of the teeth with exact reference to the artistic requirements of the case, using art to conceal art. He cannot do this by any possible means with rubber. Perhaps one of the most important points gained in continuous gum is in the gum. Arrange teeth in continuous gum work as you may, they look infinitely better than the same arrangement in rubber. One might pass, the other be simply hideous. The advantages of a correct occlusion are easily obtained also in continuous gum work for the metal plate can be used after the pins are soldered to the plate and a gum coloured wax used, and not only an absolutely correct occlusion but a study of the restoration of the lost expression can be made in the mouth in a way not possible under any other circumstances. In partial sets the plain plain teeth can be tipped with gold as are the facings in crowns and bridges, thus securing durability and strength, either the adhesion plate or broad clasps can be used.

*Dental Review.*

## REPLANTING TEETH FOR PYORRHŒA.

By Dr. R. E. Payne, New York.

The teeth were sterilized, contents of pulp chambers removed, root canals filled with parafine and salol. The gum on either side of the sockets was then injected with five minims 2 per cent. cocain solution, the sockets sterilized with pyrozone, and with Ottolengui reamer the socket deepened sufficiently to receive the teeth. The bony tissue in the bottom of the partially obliterated sockets was very dense. The four upper incisors were also reduced in size to get in the arch between the canines. To make sure that replanted teeth are surgically clean, a few fine crystals of Resorcin are placed on the apex of the root just before placing it in the socket. These crystals dissolve readily and the wound heals quickly with very slight soreness. These teeth were splinted for thirty days and then a gold plate applied, swaged to fit over the cutting edges. The essential points in the treatment are removal of dead pulps and filling roots, correcting irregularities and malocclusion (in this case by reducing the size of teeth), deepening sockets and replanting elongated loosened teeth, removal of calculus, treatment of pockets, splinting. Above all, surgical cleanliness throughout. Special attention was called to the use of Resorcin crystals at the apex of root of implanted teeth. The teeth became firm in from thirty to sixty days after splinting. *Dental Register.*

## THE AMALGAM QUESTION.

By J. N. Crouse, D.D.S., Chicago.

There are elements of uncertainty about amalgam and its use in dentistry which are more than trivial. Whether performed thoroughly or in the most careless manner, fillings of amalgam are far from satisfactory. What is the stimulus to put forth our best efforts in the use of a second best filling material, when out of more than sixty different preparations, accurately tested, not one met all the requirements for a good filling material? We are indebted to Dr. G. V. Black for the first scientific method of testing amalgam, but the average dentist is without any means of determining the quality or behaviour of the material that is more used than all others combined. It is entirely guess work in making a selection without an elaborate and expensive outfit and the expenditure of much time in careful work. A common fallacy in the selection of an amalgam is that it must be very plastic and easily mixed. This is a great mistake, as it is impossible to pack it perfectly in a cavity. Another mistaken idea is that it is injured by manipulation after it commences to set. The exact opposite is true, for a stronger and better mass can be made if the amalgam be put to place by heavy hand pressure or by malletting after it has fairly begun to set.

A third fallacy is that the least amount of mercury possible to make the mass pliable is the correct manner of mixing, but in this case again the opposite is true.

*Dental Register.*

## IODINE AND ACONITE.

By B.

Of the therapeutical value of this preparation, first introduced to the profession by the late Dr. Frank Abbot, in the treatment of periodontitis and other inflammatory conditions of the oral cavity, I have for many years found nothing to equal the officinal preparations of these drugs, as follows:

Iodine (St. George's Paint).
Aconite (Fleming's).

Equal parts. The commercial tinctures are, in the large majority of cases, absolutely useless. Young practitioners need, however, to realize that they are dealing here with two dangerous poisons, and remember that it is better to repeat the painting of the part by small quantities, than to saturate the gums to such an extent that the throat and alimentary tract are irritated, and the stomach disturbed. I am led to give this warning on account of several very nearly serious cases witnessed, wherein a young practitioner applied a large swab of cotton, dipped in the mixture, to one side of an affected tooth. Such practice is safe in the use of astringents, as a rule, but it is highly reprehensible with iodine-aconite. In one case the entire mucous membrane of the mouth, throat and tongue was discoloured from the excessive quantity used. In another case there were all the symptoms of aconite poisoning, and for several days the patient was under the care of a physician. In the use of poisons in dental *materia medica*, it is wiser to do too little than too much.

*Dominion Dental Journal.*

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## CROWNING A LIVE LATERAL INCISOR.

By Charles R. Turner.

Mrs. P—, aged fifty, presented herself for the treatment of an upper right lateral incisor, whose crown had been badly broken down by caries. Examination proved that too much tissue had been lost to restore by any filling process, so it was decided to crown. Although the natural crown had been lost to three-fourths its extent, the remainder still stood in a healthy condition, and its length was augmented by the recession of the gum from the neck of the tooth. The pulp had receded with the loss of tooth-substance, and was still alive.

It was deemed best not to devitalize, for the reasons that the patient was not to be in the city the sufficient length of time, and the tooth could be crowned without this step. So the root was prepared as follows: The palatal wall was left as long as possible, while the lingual was cut almost to the gum margin and as near the pulp as was advisable. Between the position of the pulp-canal and the palatal surface two small holes were made with a spear-pointed drill, to a depth of about two lines, parallel to the long axis of the tooth, and a cap adjusted to the root in the usual manner. Holes were then drilled in the cap at the position of the two holes, and two stiff platinum pins were inserted, cemented in place and afterward soldered to the cap. A plate tooth of proper size, shape and colour having been selected, it was backed with gold and ground to fit the cap. All the parts having then been fitted and cemented together, were removed, invested and soldered. When the crown was finished and cemented into place it gave the appearance of being an ordinary Richmond crown. As the strain of mastication upon an upper lateral incisor is such as to force the crown upward and outward, the anchorage provided in this case met the requirements.

*Penn. Dental Journal.*

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## A LAYMAN ON TOOTHACHE.

To have a sound knowledge and comprehensive experience of toothache is a thing to be proud of; for no knowledge is harder in the gaining, and no experience more severe in the enduring. I have thought of writing a work on toothache from the point of view of the expert—not the dentist's point of view, of course, but the victim's. The dentist would have two or three chapters devoted to him. I should write of the mental attitude of man towards the dentist under ordinary circumstances; and the mental attitude of man towards the dentist under exceptional circumstances, (a) before an operation, (b) during an operation, (c) after an operation. No ascent from rags to riches in the Arabian Nights is more rapid than the transition from dentist-ogre to dentist-angel. You creep timidly and abhorrently into the monster's lair; but you leave a blessing behind you when you go. The dentist, however, is only the end of the volume—an all-important appendix. The bulk of the work will be taken up with the study of toothache proper. The subject can be divided after two distinct methods, which I propose to treat separately. First, the division into regular toothache and intermittent toothache; secondly, into shooting toothache, continuous active toothache, and continuous subdued toothache, which for purposes of simplification may be called suspensory toothache. The last-mentioned is that form of the complaint which gives you just enough toothache to keep you awake in the expectation of more. The work will be illustrated by photographs of patients at various stages of the disease, and by comic sketches representing the writhing of victims in the dentist's chair. The book will not be issued until late in the year, for its agreeable character renders it a most appropriate Christmas present.

*Sheffield Independent.*

## THE PERIODICAL SHEDDING OF TEETH.

There is a particular fish, allied to the pike, met with in the seas of North America, which displays the probably unique characteristic of shedding its teeth annually. The teeth appear to be shed in the early autumn, this process being preceded by a period of inflammation of the gums. By October, however, a fresh eruption of teeth takes place. One is tempted to regret that this phenomenon should present itself in a mere fish. Nature has dealt rather hardly with human beings in according only one complete set of molars, for the most praiseworthy adaptations of the highly skilled modern dentist are but a sorry substitute for the masticatory apparatus provided for our use by Nature's laboratory. A race that rejoiced in this automatic dental rejuvenescence would carry all before it, and would literally eat up the rest of the world. The pangs of unrequited love are as nothing to those endured daily and hourly by millions of human beings whose teeth have gone to rack and ruin, and the evils dependent upon defective teeth are by no means limited to sensory inconveniences. Half the cases of dyspepsia requiring treatment are due to imperfect mastication and consequent inadequate digestion, evils which would not exist were our teeth methodically replaced like the hair or the epidermis. The teeth are dermal appendages, as physiologists never tire of telling us, and it is really remarkable that the ready reproduction which characterises all other dermal appendages should be conspicuous by its absence in the matter of the teeth. Science, however, holds out no prospect of an improvement in this respect, and if we would retain the unimpaired use of our teeth we must e'en take care of those which fall to our lot, and failing this, have recourse to the nearest dentist for substitutes.

*Medical Press.*

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## INQUIRY OFFICERS AT HOSPITALS.

The Metropolitan Sunday Fund announces that in the distribution of gifts it will lay great stress on the consideration whether or no the hospital keeps an inquiry officer to investigate the circumstances of the applicants.

With regard to the proposal of the Committee of the Prince's Fund, much good might be done by a thorough enquiry carried out by competent persons. Far from denying the need of enquiry, we have always strenuously asserted it. But that inquiry, like the other, ought to be thorough, and conducted by competent persons, if it is to do good and not harm. Let us consider the elements of the problem before us. Take the out-patient room of a large hospital under the present system—if that word is not a misnomer. There are say, 70, 80, or 100 men, women, and children applying. How can any one officer inquire even into their pecuniary circumstances? And when he has made his inquiries, how is the truth of the replies to be ascertained? Yet the pecuniary circumstances of the applicant are but a part, and not the most important part, of the question. The medical circumstances of the case are of even greater importance in determining the fitness of the applicant. This is a matter which cannot be judged of by the ordinary "inquiry officer."

Medical charity is far more important than pecuniary alms. We have now been made fully aware of the evil consequences of dispensing money without previous enquiry. Why, then, should we throw away broadcast, the rich treasures of medical and surgical relief without any attempt to discover whether or no they will be properly bestowed? The inquiry, when made, ought to be a serious and practical one. We ought to inquire into the medical as well as the pecuniary aspect of the case: and all the cases ought to be investigated. The "inquiry officer" system cannot be applied, in large institutions, to more than a small proportion of the cases, and even in these it does not exhaust the question; an applicant may be perfectly fit pecuniarily, but quite unfit medically.

The present position of the question shows the absolute necessity for some central authority, composed of members of the hospitals themselves interested, knowing what inquiries should be made and how to make them. It also shows the immense risks which the hospitals are running of falling under the dominion of bodies, no doubt most benevolent and well meaning, but who have never shown yet that they possess the knowledge which is essential to the proper distribution of large funds.

In connection with this matter we cannot do better than call attention to the report of the Royal Free Hospital. That institution, anxious to reform any abuses in its out-patient department, has for the last three years availed itself of the services of a lady almoner, introduced to them by the Charity Organization Society. This wise step reduced their numbers last year from 38,892 to 35,118, or, in other words, relieved the charity of the burden of 3,774 improper applicants. If so much can be done by an enquiry into the pecuniary aspect only of the question, how great an improvement might be effected by a thorough investigation of its medical aspect also.

In perusing the same report, we see that the Royal Free Hospital welcomes the formation of the Central Hospital Council—that is, the Council lately constituted by the hospitals with medical schools attached. We hope that the Council (which has taken power to admit fresh hospitals into its body) will gradually develop into a Board on which all hospitals will be fairly represented.

*British Medical Journal.*

# Reports of Societies.

## ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary monthly meeting, February 7th, 1898. Mr. W. E. Harding, President, in the chair.

The minutes of the last meeting were read and confirmed.

The following gentlemen were balloted for and elected members of the Society. As a resident member:—George Nicholas Willis, L.D.S. Eng. As non-resident members:—John E. Grevers, M.D., Amsterdam; Thomas Edward Constant, L.R.C.P. Lond., M.R.C.S. Eng., L.D.S. Eng., Argyle Lodge, Scarborough.

The following gentlemen were proposed as members of the Society. As a resident member:—W. May, L.D.S. Eng., 32, Oxford Road, Kilburn, N.W. As a non-resident member:—C. A. Malone, L.D.S. Eng., 63, Plymouth Grove, Chorlton-on-Medlock, Manchester.

The Librarian acknowledged with grateful thanks the following donations: *Transactions of the Medico-Chirurgical Society*, 14 bound volumes, from 1884 to 1897; *Transactions of the Clinical Society*, two volumes, 1896 and 1897, from Mr. Storer Bennett; *Transactions of the Pathological Society*, 9 bound volumes, from 1887 to 1896, from Mr. F. J. Bennett; a "Manual of the Injuries and Surgical Diseases of the Face, Mouth, and Jaws," by John Sayre Marshall, M.D., from Mr. Christopher Heath; and the *Calendar of the Pharmaceutical Society* for 1898.

The Curator (Mr. Storer Bennett) said he had had an opportunity of purchasing for the Society an exceedingly interesting specimen, a piece of secondary dentine from the tusk of an elephant's tooth. It was a piece of very irregular structure, formed as the result of irritation from a leaden bullet which was embedded in a portion of it. No doubt at some long previous period the bullet was shot into the growing, thin part of the tusk—the distal end. The bullet was very much flattened, and altogether misshapen. From the laceration it caused, a great destruction of pulp occurred, but ultimately a large amount of very irregular secondary dentine was produced. The bullet, beaten almost out of recognition, after a time ceased to irritate, so that ivory was formed around, and close up to it. The bullet was so intimately surrounded by the ivory as to appear just as much a portion of the structure as the secondary dentine in the neighbourhood. The great point of interest about the specimen was, that had the bullet been of iron, instead of being closely surrounded by ivory, as it was in this instance, there would have been a large cavity in which the iron bullet would have lain quite loose, and if shaken might have been heard to roll about in the cavity; whereas in the specimen shown it was absolutely impossible to obtain the smallest movement of it. In cutting up the specimen the ivory dealer had passed his saw right through the ivory and the bullet, but without dislodging it, and so the bullet was *in situ*. As Dr. Miller had pointed out some years ago in a monograph written on the subject, iron implements of all kinds produce a much greater amount of irritation than leaden ones do.

## CASUAL COMMUNICATIONS.

Mr. F. W. BARRETT showed to the Society a skull which a friend of his had found whilst travelling in North-west Canada. It came from a place near Vancouver's Island, on the border of a large track of land known as the Barren Lands. Those regions were inhabited only by a few wandering Indians and by such animals as the musk ox, which they hunted. From the shape of the skull, and especially from the flattening of the forehead, which appeared to be artificial, and from which the very large left mandibular third molar, the only one of that series which happened to remain standing, and from the situation in which it was found, the skull was probably that of a male adult Indian, belonging to one of the aboriginal tribes which inhabited those parts. The chief point of interest lay in the extreme amount of attrition that had occurred in all the teeth. Many of them were worn down beyond the limits of the pulp cavities and in some cases, especially in the left mandibular molars, there were large openings leading into the pulp chambers. The formation of secondary dentine had, in most of the teeth, kept pace with the process of wear, but in the molars referred to this was not the case, and he therefore inferred that the wearing down process had been very rapid and severe. He was told that the food of the people consisted chiefly of frozen fish and meat and uncooked grain, and was probably mixed with a great deal of dirt and ice, the temperature there frequently being at from 40° to 60° F. below zero; and being without the means of cooking their food, they were consequently obliged to eat it in a frozen condition. His friend informed him that among the Indians of those regions death from starvation frequently followed close upon the loss of teeth. Mr. Barrett did not know that the skull presented any other features of dental interest, except that in the mandible there was evidence of necrosis having taken place at several points, possibly due to the formation of abscesses at the roots of the teeth. He was aware that extreme wearing down of the teeth was a condition not uncommonly met with in savage races, but he thought that the condition shown in that specimen might be of interest to the meeting.

Mr. H. BALDWIN said a point which had struck him as being especially interesting was the remark which Mr. Barrett made that the Indians soon after losing their teeth were known to die. It had often struck him that among all the theories that were brought forward to account for caries of the teeth the one which was based on the Darwinian theory, due to the interference with the working of Darwin's laws, and which caused degeneration in that way, was the one which afforded the best explanation, and to have it definitely mentioned that the Indians on losing their teeth died, apparently from that cause, was a very important point in that connection.

Mr. H. LLOYD WILLAIMS said the fact of the teeth being ground down had been very frequently ebserved, and there were a great number of skulls showing it in the American Museums, and American writers had referred to it. It would be an interesting fact to know, approximately, to which tribe or to what group of tribes the skull belonged. Mr. Barrett referred to the flattening of the forehead. Mr. Lloyd Williams did not remember hearing of the shaping of the head in that way among any of the North American Indians. In Mexico that form of shaping the head was very common, but amongst the Indians about the Hudson Bay and the cold district the plan generally adopted was to tie a flat piece of wood on the top of the head, so as to get that part flat; the skulls were thus easily known as a general rule. The skulls of the Indians in the extremely cold region in the North of Canada were very flat on the top, and not, as in the skull shown, with a very receding forehead.

Mr. ASHLEY BARRETT the cause of this great wearing away of the teeth was of interest. One often found the teeth of savages who fed on coarse food with which sand had been mixed accidentally, worn down almost as much as those in the skull shown, but he thought there was here one special cause for the wearing, and he gathered this from reading recently a book by a Mr. Whitney who had been lately travelling and hunting in the Barren Lands. Mr. Whitney said that the staple article of food on which he and his Indian servants lived was fish taken from the lakes and frozen, which they carried with them for months. He also mentioned that the temperature frequently ranged from 40° to 60° below zero. Mr. Barrett thought that at that very low temperature the icy particles necessarily mixed with the frozen fish must have a great wearing action on the human teeth.

Mr. F. J. BENNETT considered that it was not easy to follow Mr. Barrett in his deduction that the Indians were in the habit of masticating ice; physiologically he should think those savages likely to drop off very soon indeed with or without the loss of their teeth. With regard to the dogma that when those people lost their teeth they died off rapidly, it might be put in the other direction, that when they degenerated they lost their teeth. With regard to the wearing down of the teeth, the most crucial test of the rapid wear of the teeth would be found when it was possible to obtain a juvenile jaw and see the erupting teeth side by side with the teeth in use. If they found a first permanent molar much worn by attrition, and a second permanent molar only just erupting, they might be sure that the wear and tear was very rapid indeed. Usually it was understood that the wearing of the teeth was greatest in grain-eating and not in flesh-eating people.

Mr. F. W. BARRETT, in reply, said he believed the cause of death from starvation was due rather to inability to masticate food after the loss of teeth. He was unable to name the exact tribe to which the owner of the skull belonged. It came from a place called Fort Rupert, and he thought that many different tribes had mingled there. His friend had told him it was a custom existing among some of the North-West Indian tribes of flattening the foreheads of the children in order to produce what they regarded as types of beauty. From a book by Catlin upon the North American Indians, to be found in the Guildhall Library, he gathered that this custom of flattening the heads obtained among the North American Indians, as well as among those of Mexico.

Mr. H. L. ALBERT then read a paper on "The Sulpho-Cyanide of Potassium in Saliva," which appears at page 241.

### DISCUSSION.

Dr. BUCKMASTER said he did not quite agree with the term "co-worker," because the whole of the work had fallen on Mr. Albert. As Mr. Albert had said, he (Dr. Buckmaster) had from time to time helped him with suggestions. He thought everybody would agree that the method was perfectly reliable and excellent. To understand any method was difficult from the reading of a paper. The whole of the experiments connected with the question could be performed in a minute and a half or two minutes. It was a method for quantitative determination of the salt, and depended upon a principle which for the first time had been put into practice by Dr. Oliver for the determination of the hæmoglobin of the blood. For estimating the hæmoglobin of the blood he (Dr. Buckmaster) supposed there existed at the present time nearly twenty different kinds of apparatus in which not one single apparatus was absolutely reliable with the exception of the hæmoglobinometer devised by Dr. Oliver. By the device of using coloured glasses and various standards of colour, examined by monochromatic light if possible, they could for the first time absolutely determine with accuracy the amount of hæmoglobin. It occurred to Dr. Buckmaster that one might apply the same principle to the sulpho-cyanide of potassium in saliva, and he suggested that to Mr. Albert, who had worked the matter out. That the salt varied was undoubted. Year by year, in the observation of hundreds of tests for the sulpho-cyanide, one noticed quite easily that some individuals had absolutely none in the saliva, while others had an excess. That could be told with the naked eye. With an apparatus of the kind shown, the percentage could be decided at once, and that was of course an advantage. All the methods hitherto existing for quantitative determination of sulpho-cyanide of potassium in saliva had been laborious chemical methods. There was a simpler device by Oehl and another by Dr. Fenwick, and both these were of value, but not of the value they should be, since the standards changed day by day. If they had a varying standard it was quite clear they could not possibly hope to have any result that was worth paying attention to. He thought any advance in a matter of that kind depended on the introduction of a new method. It was recognised daily that it was the introduction of new methods which were really necessary for advances in knowledge of all kinds. Since it was certainly quite a doubtful point as to whether sulpho-cyanide had any relation to caries or not, it was possible that the work of Mr. Albert might have far-reaching results. For the purpose of ascertaining whether there was any relation existing between the presence of the salt in the saliva and caries or other constitutional disturbance, an apparatus such as Mr. Albert had shown was an instrument of great value, indeed, as accurate for the determination of sulpho-cyanide of potassium in saliva as the Oliver-hæmoglobinometer was for the determining of hæmoglobin in the blood.

Mr. Kenneth Goadby agreed with Dr. Buckmaster as to the extreme usefulness of the new method, and its adaptation to the quantitative estimation of the sulpho-cyanide. He congratulated Mr. Albert on having undertaken such a subject. Dr. Buckmaster had referred to the probable relation of sulpho-cyanide and dental caries. Mr. Goadby thought that most of the members of the Society would agree that the theory of caries which generally held the ground was one which quite excluded any idea of the action of sulpho-cyanide. Mr. Albert said that Hugon Schmidt had found that sulpho-cyanide had a distinctly bactericidal action. Mr. Goadby could not confirm that statement himself, because in two of the special mouth organisms—those that Miller described as *the* mouth organisms—in some cultures he had now, and which he hoped to describe before long, he found that 5 mgs. per cent. of sulpho-cyanide had no inhibitory action whatever, and that in their growth in an ordinary broth and a sulpho-cyanide broth there was no distinctive difference. Dr. Fenwick in his papers had made several suggestions as to the origin of the sulpho-cyanide in the body, but in making a list of the suggestions as to the origin of the salt Mr. Goadby found that they more or less contradicted one another, so that it was scarcely worth while to cite them all. Dr. Fenwick seemed to think that it depended largely on the bile flowing into the intestines, and he also said it was less in atonic dyspepsia and cancer of the stomach. Neuski had found that the sulpho-cyanide might be formed in the body from the digestion of the nitrils of the higher fatty acids, and he had also shown that if proteids were digested with potassium cyanide the result was a yield of potassium sulpho-cyanide. It was rather an interesting point, and Mr. Goadby recommended it to Mr. Albert's attention. As to the connection of tobacco with carious teeth, Dr. Fenwick took a good deal of trouble to collect evidence, and although his method of estimating the quantities was certainly not a particularly good one, owing to the variations in the standards, he had pretty conclusively shown that sulpho-cyanide did not make much difference. He had found large or small yields of sulpho-cyanide both in smokers and non-smokers, and people with carious and with non-carious teeth.

Mr. Walter Coffin said it certainly seemed to be a very elegant and rapid method of conducting what had always been a tedious and uncertain analysis. Probably to most of the members it would seem a dry and uninteresting subject, but those who had tried to estimate the quantity or even the existence of sulpho-cyanide in saliva would appreciate the great advantage of the method. It was to be hoped that Mr. Albert and Dr. Buckmaster would use it to clear up many discrepancies and contradictions in the text-books on the subject. He thought it should set at rest some moot points still undetermined. Some authorities reported that sulpho-cyanide was only found in parotid saliva, that it was frequently entirely absent, and so on. It had been considered that sulpho-cyanide might inhibit the activity of mouth bacteria, but he supposed that was extremely doubtful. Certainly they seemed to be quite in the dark as to any useful function in the animal economy of this constituent of the secretion. As to the actual quantity normally present further information was desirable. If he recollected rightly, taking the average numbers reported, the mixed saliva of the human adult secreted in the twenty-four hours would contain, of sulpho-cyanide of potassium, one to two grains. It seemed a very surprisingly large amount of an inorganic substance so highly poisonous, and one was struck with astonishment that the human organism should elaborate aimlessly this quantity. A point of interest with regard to the cyanogen compounds was that the earliest knowledge of the oxides of cyanogen was obtained by Scheele, when analysing a specimen of urinary calculus. He revealed the constitution of cyanuric acid, uric acids and urea. It was in that little corner of chemical research, with the synthesis of urea that came from Scheele's discoveries, that the supposed impenetrable barrier between organic and inorganic compounds was first broken down. Mr. Coffin congratulated physiological investigators on having such a very simple method of determining what had been always an exceedingly laborious and very doubtful matter, with the chance of throwing some light upon the very obscure question of the *role* of the substance in saliva.

Mr. F. J. **Bennett** said the Society was very much indebted to Mr. Albert for the apparatus he had shown. Perhaps in dentistry more methods were required than theories. Whether the present method had any bearing on caries or anything connected with the pathology of the teeth did not for the present matter, if it were the beginning of investigations on the part of Mr. Albert.

Mr. **Albert** thanked the Society for the kindly hearing they had given his paper. Mr. Coffin had spoken of the "secretion" of the sulpho-cyanide of potassium, but Mr. Albert was not quite sure whether it was a secretion or not. He did not think anybody else knew. One grain a day, however, was rather a lot.

The **President**, having thanked the author of the paper and the various persons who had spoken, and the donors and contributors to the Library, adjourned the meeting to March 7.

## BIRMINGHAM DENTAL STUDENTS' SOCIETY.

A meeting of this Society was held at Mason University College on Thursday evening, February 5th. The President, Mr. A. T. Hilder, being in the chair. The minutes of the last meeting having been adopted, Messrs. Malcolm Knott, and J. R. Habgood exhibited models showing persistence of temporary canines and other peculiarities.

Mr. R. W. Griffin read a paper entitled "Some Debateable Points in Gold Filling." The chief object of the paper was to promote a discussion on the subject of gold-filling, and this object was well fulfillod—numerous points of interest being raised.

Mr. P. Lambert Smith read a very interesting paper on "Dentistry in South Africa." He described the travelling dentist who makes appointments through the resident medical officers in several towns, often for months in advance, and then proceeds on his rounds to keep these appointments. Mr. Smith also gave a brief account of some of the methods employed by the natives for the relief of dental troubles.

A meeting of this Society was held at Mason University College on February 24th. Mr. A. T. Hilder being in the chair. A living case was brought forward by Mr. Charles E. Mountfort which showed extensive caries in the upper teeth the lower ones being perfect; the reason given being the unsymmetrical extraction of the first molars at the age of 13,—the lower ones having been removed and the uppers left in. There was no doubt as to the condition, but many members of the Society doubted if the reason given was a sufficient explanation.

Mr. W. Cecil Harrison shewed a good specimen of an odontome developed in connection with an unerupted supernumerary labial tooth.

The President shewed models of a case of phosphorous necrosis in which the damage had been so extensive that both sides of the maxilla were removed. The patient has since been accommodated with an obturator by means of which the functions of speech and mastication are in great measure restored.

Mr. T. Warmington read an admirable paper entitled, "Hints on Mechanical Dentistry." The paper contained much valuable advice, and was followed by a capital discussion.

## NEWCASTLE DENTAL HOSPITAL.

The annual meeting of the Newcastle Dental Hospital was held on February 25th, at the Board Room, Nelson Street, Mr. G. R. Brewis presiding, in the absence of the Mayor. The committee's report for 1897 stated that 2,464 patients were treated during the year, making a total of 5,879 since the hospital was opened, this clearly proving the value of the institution to the suffering poor of the city and neighbourhood. Deep regret was expressed at the death of Mr. J. C. S. Harper, one of the honorary dental surgeons, who was one of the founders of the hospital and a generous supporter of it. The increase in the work of the hospital had rendered it necessary to appoint two additional honorary assistant dental surgeons, Messrs. T. R. Haggerty and T. R. D. Walkinshaw. Financially there was a credit balance of £12 19s. 6d. on the year's work, but to ensure the satisfactory continuance of the work a considerable increase in the number of the annual subscribers was essential. On the motion of the chairman, who pleaded for additional financial aid so as to avoid a restriction of the work, seconded by Mr. J. A. Baty, the report was adopted.

Sir Matthew White Ridley, Bart., M.P., was re-elected president; and the Bishop of Newcastle, Mr. W. A. Watson Armstrong and the Mayor were chosen as vice-presidents.

The following students attending the dental classes received medals:—Mr. C. Lotinga, for dental surgery and pathology, given by Mr. Jameson; Mr. T. R. Haggerty, dental anatomy and physiology, given by Mr. Daniels; Mr. C. Lotinga, dental materia medica and therapeutics, given by Mr. Routledge.

Votes of thanks to the staff and the chairman concluded the business.

## GLASGOW DENTAL HOSPITAL.

The 13th annual meeting in connection with the Glasgow Dental Hospital was held. Lord Provost Richmond presided. The Secretary, Mr. D. M. Alexander, submitted the directors' report. As was anticipated in last report, the falling off in the number of patients occasioned by the removal of the hospital premises was only temporary. The patients attending the hospital during the past year had been 5,492, as against 4,034 recorded in last report, being an increase, as compared with last year, of 1,458. The number of operations performed was 6,811, as against 5,897, being an increase of close on 1,000. These figures attested the magnitude of the need which the hospital is meeting among the suffering poor of Glasgow who were unable to provide themselves with professional assistance. Dental disease, in some form or another, was unfortunately the lot of nearly every one, and this fact was of assistance in estimating the amount of relief from suffering which is involved in the statistics. When it was mentioned further that of the 6,811 operations 2,276, nearly a third, were preservative operations, it would be seen that the quality of the work done at the hospital was equally satisfactory. The financial statement closed with the balance in the bank and on hand of £169 7s. This satisfactory result was contributed to by a legacy of £100 received during the year from the trust estate of the late Mr. Peter Craig, and the bequest of £50 from the Bellahouston Trustees which they kindly renewed for the year. When it is kept in view, however, that the account opened with a sum in hand of £68 10s. it would be seen that, but for the special sources of income mentioned, the expenditure of the year would not have been met by the ordinary income. This is far from satisfactory, especially in view of the fact that the income from students' fees is this year £165, as against £135 received last year. The record of the hospital work during each year since its institution had increasingly justified its existence as a needed and useful charitable institution. The directors feel strongly that its maintenance should not be dependent on any precarious source of income but should be assured by voluntary offerings of the citizens. Having taken its place among the city hospitals as regards the work it was doing among the city's suffering poor, the directors trust it will also find its place among the hospitals of the city as a worthy object of the charitable bequests and annual contributions of the citizens.

The Lord Provost, in moving the adoption of the report, said it was of a most satisfactory character. It was a great pleasure to see that the hospital was in so good a financial position. It was perfectly true, as the report pointed out, that this was largely owing to a source of income on which they could not always rely, apart from the ordinary income, but no one was to know that more money would not come to them in the same way. The report which was often given in connection with many institutions was that there was a balance on the wrong side of the account, and that an earnest whip up was necessary. All the same, institutions such as that should be able to pay their way irrespective of bequests. The amount of work which was done was astounding to his mind, and the preservative operations proved that a great deal of suffering must have been alleviated among poor people who could not afford ordinary dentists' fees.

Mr. J. Brownlie seconded, and the report was adopted.

The following were elected directors: — Messrs. J. R. Brownlie, L.D.S.; John Garroway, and Robert Harvey.

The proceedings terminated with the usual votes of thanks.

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For sterilizing instruments, boil them for five minutes in a one per cent. solution of carbonate of soda. It will preserve them from oxidation, as well as make them aseptic.

# Dental News.

## OPENING OF THE COLLEGE OF DENTISTRY IN MELBOURNE.

The President of the College (Mr. Simon Fraser, M.L.C.), said he was aware that the profession of dentistry had made great strides of late. Prior to 1876 very few dentists knew anything more than the mechanical part of dentistry, such as pulling out a tooth, and were ignorant of surgery and the higher branches of the profession. Colleges were established in most of the towns of the United States, and they were commencing to advance in England. The opening of these premises was a step in the right direction. He had very much pleasure in declaring the premises open, and he hoped that intending students, instead of going to the old country to study, would study here with satisfaction to themselves and to the public generally. (Applause).

Dr. A. P. Merrill, dean of the college, explained that the movement for the establishment of the college originated two or three years ago, but the profession could not then be induced to take the active interest in the project which they had since taken. They had assembled now to give expression to the wants of the profession and of the people throughout the Australian colonies. The lectures of the college would commence on 1st March, and terminate on 31st October. During the last four months, however, 150 lectures had been delivered on different subjects appertaining to the profession and collateral sciences, and there had been two examinations, one of which had only just been completed. The examinations had proved highly satisfactory, not only to each lecturer, but to the council of the college. The Dental Hospital which was open throughout the year, was not in any sense a feeder to any private practice, neither was the college a proprietary college in any sense of the word. The dental profession required something of the sort in order to become better educated, thereby better educating the people to discriminate between the charlatan and those who practised honestly. It was needed, and a step forward had been taken in the interest of dental education. The college intended to teach the youth, so that they could take their position in the field of science in any part of the world. From his experience of colleges in America he must say that the Australian student far exceeded his most sanguine expectations, and he had never seen a better class of students. It was commendable to them and to the people of Australia. The latter were waking up to the fact that there was more in dentistry than the mere extraction of the tooth and artificial filling, and were learning to believe in saving the teeth that the Creator had given them. The sooner they became educated to that the sooner their health would improve. He believed that the young students that would graduate from this institution would look back some day with pride to their Alma Mater. The College had had 27 students, including five practitioners who desired to acquire more theoretical knowledge. It was a great shame that students had been obliged to go to America and England when there was so much latent talent in the colonies.

Mr. A. F. Clark, in proposing the toast of Parliament, said that the council were to a great extent stultified in their actions, inasmuch as the present Act was not sufficiently comprehensive to enable the Dental Board to insist on any actual standard of edncation. He hoped that when an amending measure came before Parliament it would receive the earnest support of all the members.

Mr. Zox, M.L.A., in proposing success to the college. expressed the hope that the college would have all the success it deserved. He did not at first understand why he had been invited, but the last speaker had let the cat out of the bag. Whenever members of Parliament were invited there was always something that they were to be asked to do. He would give his support to the proposed measure.

Mr. Iliffe, vice-president responded on behalf of the council and the staff of clinical instructors. The Dental Hospital had been in work since 13th September, 1890, and it was in the unique position of never having been in debt, and never having the patronage or assistance of the Government. For the year ending 30th 7une, 1891, 1179 persons were attended to, 1863 operations were performed, cf which 106 were fillings. For the year ending 30th June, 1897, 4164 persons were attended to, 7081 operations were performed, and there were 1129 fillings. During the seven years there had been 12,290 patients, 21,100 operations and 2254 fillings, showing the growth toward what they desired, viz., the saving of the teeth. The work was for the relief of poor people, and doubtless the staff had been imposed upon sometimes; and it was scarcely fair that dentists should have to do this work, and then find that they were depriving some other dentist of his fee and pauperising the people.

After an inspection of the building the company separated.

## CAN UNREGISTERED PRACTITIONERS PRACTISE?

The General Medical Council, through Mr. Muir Mackenzie, barrister. applied at Westminster, for a summons under the 40th section of the Medical Act of 1858, against a person for assumption of a medical title. Counsel said that the person (the name was mentioned) had for an offence had his name erased from the Register. Notwithstanding this, he continued to practise, using the titles implying that he was still a registered practitioner.

Mr. Shiel: There is nothing compulsory about registration if a man possesses the qualifications?

Mr. Mackenzie: Yes; otherwise a man is not entitled to practise.

Mr. Shiel: Show me anything which says that a man who has his degrees is prevented from practising through non-registration.

Counsel cited cases, and a judgment of Lord Coleridge in a particular case very like the present.

Mr. Shiel said he did not think there was anything in the Act making it obligatory for a qualified man to be registered. There ought to be such a provision. He declined to grant a summons, and he must leave Mr. Mackenzie to his remedy elsewhere.

## ROYAL COLLEGE OF SURGEONS IN IRELAND.

### DENTAL EXAMINATION.

The following gentlemen having passed the necessary examination have been admitted Licentiates in Dental Surgery of the College:—Mr. J. R. Blackwood, and Mr. E. D. Bowen.

## ROYAL COLLEGE OF SURGEONS IN IRELAND.

The following questions were given at the Final Dental Examination, February, 1898.

### *Dental Mechanics.*

Mr. Yates and Mr. Bishop, Examiners.

(All the Questions to be attempted).

1. Describe Büttner's method of pivoting, its advantages and disadvantages.
2. Mention the constituents of gold solder.
3. State accurately the method of making a suction chamber in a complete upper gold denture.
4. Describe how you can obtain pure gold from lemel; and from an ounce of gold thus obtained alloy 18 dwts. of it to produce 18 carat gold plate suitable for base plates, and 2 dwts. suitable for clasps and wire.
5. How can you account for the warping of metal plates during soldering? What precautions will you take to prevent such? And if such has occurred, state your remedy.

### *Dental Surgery and Pathology.*

Mr. Corbett and Mr. Baker, Examiners.

(All the Questions to be attempted.

1. What do you understand by Cataphoresis? How is it used in dental operations?
2. Enumerate six different agents used to reduce sensibility of dentine. Give method of applying each.
3. Contrast erosion with caries.
4. What accidents may occur in connexion with the administration of local and general anæsthetics for dental operations?
5. Define the term odontome. Give any classification with which you are acquainted.

## APPOINTMENT.

William E. James, L.D.S., R.C.S.I., has been appointed Hon. Dental Surgeon to the Surbiton College Hospital.

CAUSE OF APICAL INFECTION.—Infection of the tissue beyond the apex of the root is quite often brought about by the careless use of air syringes having powerful bulb attachments. Better to disinfect first, then dessicate.

*Dental Review.*

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REMOVAL OF GREEN STAIN.—Dentists usually remove green stain by means of a wheel and pumice-stone, and the green stain almost invariably returns. If the surface, however, is left perfectly smooth it will not return.

*Dr. Green, Cosmos.*

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TOOTHACHE REMEDY.—

℞ Lini aconiti (B.P.),
Chloroformi ... aa fʒiij.
Tr. capsici ... fʒj.
Tr. pyrethri,
Ol. caryophylli,
Pulv. camphoræ aa ʒ ss.

M. Sig.: A few drops on cotton placed in the cavity.

*Mason.*

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## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

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British Journal of Dental Science.

No. 725. LONDON, APRIL 1, 1898. Vol. XL.

# CLINICAL REMARKS ON MISCELLANEOUS CASES.*

By Edmund W. Roughton, B.S., M.D.(Lond.), F.R.C.S.Eng.
Hon. Visiting Surgeon to the National Dental Hospital,
Surgeon to the Royal Free Hospital, etc.

Mr. President and Gentlemen,—When, a few weeks ago, I was asked to contribute a paper at this meeting, I was rash enough to say "Yes" without thinking whether I had anything worthy to bring before your Society. On thinking the matter over I came to the conclusion that if I dealt with any particular subject, I could only tell you what you can read for yourselves in books, so I thought it would interest you most if I read brief notes of cases of oral surgery which have recently been under my care, and pointed out to you what I consider their most interesting features. This is my only excuse for offering you the following rambling and disjointed remarks.

*Two cases of Syphilitic necrosis of nasal septum and palate. Removal of sequestrum through nose without perforation of palate*:—

Case I.—A labourer was sent up to me from the country as an incurable case of ozœna. On examining the nose I found that the septum was extensively necrosed. I removed several small sequestra and then found that there was a large piece of dead bone, which, although, loose, I could not dislodge without giving the man more pain than he could stand. A few days afterwards I had the patient anæsthetised, and after rather a struggle, I managed to extract from the nose a sequestrum an inch and a half long, half of an inch wide, and more than a quarter of an inch thick. It consisted of the median portion of the hard palate as far forward as the anterior palatine canal, and the portion of the nasal septum which is formed by the crests of the superior maxillary bones.

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* A Paper read before the Students' Society, National Dental Hospital.

The muco-periosteum of the hard palate was not injured, consequently there was no perforation, and speech was not in any way affected.

The patient took iodide of potassium in ten grain doses, thrice daily.

The discharge soon ceased, and he went home cured.

There are several lessons to be learnt from this case. Firstly, with regard to the use of the word ozœna. Ozœna means an offensive discharge from the nose. This condition is often produced by atrophic rhinitis, and some people use these two words as if they were synonymous. But there are other conditions causing an offensive nasal discharge. In this case the cause of the discharge was syphilitic necrosis.

Secondly, whenever there is a purulent nasal discharge, the nose should be carefully examined with light, speculum and probe.

Thirdly, when a sequestrum of the palate can be removed through the nose, it should not be attacked through the mouth. Had the palate been perforated in this case the speech would have been greatly impaired.

Case II.—The second case so closely resembled the one just described, that I will not refer to it in detail.

*Necrosis of Maxilla in a patient who had taken (medicinally) large quantities of phosphorus.*—

Case III.—A gentleman, æt. 45, as a result of worry in connection with money matters and family troubles, became addicted to the use of alcohol and of morphia. As a natural result his general health suffered considerably, and this led to his taking various tonics, and amongst them phosphorus. For about two years he took rather more than a grain of phosphorus a day in the form of a pill. A few months before he came under my care he had a carious upper molar stopped. The stopping was followed by much pain due apparently to inflammation of the bone surrounding the socket. The tooth was removed, but without giving the desired relief.

When I first saw him he was in a wretched condition. He could take no food except a little soup. He took large quantities of brandy during the day, and could not sleep at night except when under the influence of morphia. He was suffering great pain in the right upper jaw radiating over the whole of that side of the head. The mouth could only be opened to the extent of separating the incisor teeth about half an inch. A probe passed into the socket of the extracted molar impinged on dead bone. There was a purulent discharge from the right nostril indicating that the trouble had extended to the antrum.

Feeling sure that he was suffering from rather extensive necrosis of the maxilla, I determined to explore the parts affected with a view to removing the sequestrum if possible. An anæsthetic was therefore administered, and the mouth fully opened with a gag. I found that the sequestrum was not loose, and being unable to determine its extent, I contented myself with gouging away enough of it to make an opening about a quarter of an inch in diameter into the antrum.

The immediate result of the operation was not very encouraging. The pain was only slightly diminished, and the trismus was unaffected, but the antrum was drained and could be kept fairly clean by irrigation. About a fortnight after the operation there was much swelling of the hard and soft palate on the affected side extending to the nasopharynx, blocking the Eustachian tube, and causing deafness. I then began to fear that the necrosis was extending, and that I should be obliged to attempt some further and more extensive operation. As the swelling did not increase, I decided to leave matters to take their own course. About two months after the operation the patient detected that something in the jaw was loose, and after one or two attempts, managed to extract a sequestrum about the size of the last joint of the thumb. On examination I found that it consisted of the tuberosity of the maxilla with a portion of the floor of the antrum. After this he soon got well. The discharge ceased, the swelling subsided, the hearing power was regained, and the general health improved wonderfully. The opening into the antrum filled in to a large extent with soft tissues, and has now been effectually covered by a plate bearing teeth replacing those that had been lost. He has now given up morphia, takes only a moderate amount of stimulant, eats and sleeps well, and has resumed his ordinary occupation.

There are several points of interest in this case, but the question which interests me most is what was the cause of the necrosis, and was the phosphorus which he had taken in such large doses responsible in any way for the trouble which ensued.

It is well known that inhaling phosphorous fumes is a fertile cause of necrosis in people who have carious teeth, but it is open to doubt whether phosphorous when absorbed through the stomach can produce the same effect. It occurred to me that phosphorus fumes might reach the mouth by eructation from the stomach containing the partially dissolved pills, but the patient denied having experienced anything of the sort. On the whole I am inclined to think that the phosphorus was not the cause of the necrosis in this case. I regard it a sa case of necrosis of dental origin in a patient whose vitality was at a very low ebb.

*Acute necrosis of mandible. Pyæmia. Death.*

Case IV.—A boy, æt. 7½ years, sat in a draught at school one day. The same night he complained of pain in the left side of the face. Next day his face was swollen and his temperature 105°. Three days later rigors occurred, he was slightly delirious, and the swelling had extended to the parts below the jaw. I saw him on the sixth day of his illness, and found the first molar quite loose and pus welling up around it on pressure. I removed the tooth (which was apparently quite healthy) and incised the swollen tissues in the neck freely. On the following day there were signs of peritonitis and pneumonia, and the child died eight days from the first onset of his illness.

I regard this case as one of acute infective panosteitis of the mandible, that is to say, an acute inflammation of the bone due to the action of micro-organisms, probably the staphylococcus pyogenes aureus. Whether the case commenced as an alveolar abscess or not is comparatively an unimportant point. In as much as there was no dental caries, the micro-organisms must have reached the affected part through the blood stream, and not through the mouth.

*Alveolar Necrosis of mandible involving mandibular nerve.*

Case V.—A young woman came to this Hospital some two or three years ago suffering from a carious lower wisdom. There was very severe pain extending along the course of the mandibular nerve, and the skin over the chin on the same side was anæsthetic. The tooth was extracted but the pain was not relieved. When I saw her I passed a probe into the empty socket and detected dead bone. A few days afterwards I removed a ring of dead bone. The pain did not subside at once, but went away gradually. In this case the inflammatory trouble had evidently spread to the nerve and set up neuritis which continued for some little time after the source of irritation was removed. I lost sight of the patient as soon as her pain was cured, so I cannot say whether the anæsthesia was permanent.

*Sinus discharging on gum, due to a buried stump.*

Case VI.—This is one of several cases which have come under my notice during the last few years, in which a tooth has been incompletely removed, and a discharging sinus has been the result. My excuse for referring to a class of case which is not very rare or very interesting, is that I wish to impress upon you the importance of removing the tooth, the whole tooth, and nothing but the tooth. Should a stump be unavoidably left behind, it is well to inform the patient that further treatment will be necessary. His confidence in your skill will not be increased if he has to put up with a pus-discharging sinus for months or years, and finds out eventually that it has been due to an imperfect operation performed by you.

The patient was a man, æt. about 30, who had had a sinus discharging pus on the gum near the roots of the upper canine and lateral incisor of the left side which had been incompletely removed. A probe passed into the sinus impinged on something hard, whether dead bone or a buried stump I could not tell. Under anæsthesia I proceeded to expose the affected parts, but the operation was cut short by the patient stopping breathing. We resuscitated him all right, but deemed it wise to leave the operation unfinished. As might be expected no benefit resulted. I lost sight of the patient for a year. He then submitted to operation again, and I removed two buried stumps, scraped out the sinus, and effected a cure.

*Necrosis of Mandible (probably of Dental origin) followed by Fracture of Mandible during mastication.*

Case VII. This a a man most of you have probably seen. He came here some months ago with swelling of the lower jaw near the angle on the left side. He had a carious molar extracted. It soon became evident that there was rather extensive necrosis. Numerous small pieces of bone came away from time to time, and eventually one large piece about an inch long.

One day when he was eating he felt a snap. Next time we saw him we found that the jaw had broken right across at the seat of necrosis, and that the anterior fragment was overlapping the posterior.

The question that presented itself to us most forcibly was how we should secure union and overcome the deformity sufficiently to restore the bite. The fracture being near the angle, there was no possibility of fixing any form of retentive apparatus to the posterior or smaller fragment, therefore the choice lay between adapting some form of interdental splint and wiring the fragments together. As my dental colleagues did not seem sanguine as to the result to be attained with the interdental splint, I decided to wire the fragments, and with this object in view recommended him for admission to the Royal Free Hospital as soon as the discharge of pus had ceased and the sinus in the mouth had healed. However, when he arrived at the Royal Free, a week afterwerds, he was found to have an abscess in his cheek, and a temperature of nearly 105°. Operation was clearly out of the question, so we opened the abscess from within the mouth. In a week's time the abscess had healed, and we sent him to a convalescent home to get into a better state of general health. On his return there was another abscess, this time pointing on the skin near the angle of the jaw. This we were obliged to open from without.

I am afraid our chance of rectifying the deformity has now gone by, as there is firm fibrous union binding the fragments together in their abnormal position.

*Pain in the ear due to a carious lower wisdom tooth.*

Case VIII. This case is an example of a fairly common condition. A nurse was sent to me on account of earache, and deafness in the right ear. On examining the ear I found the membrana tympani healthy. I then examined the mouth and found the lower wisdom on that side extensively decayed. The tooth was extracted and the pain was relieved. The deafness was due to Eustachian obstruction, and was soon cured by inflation with the Eustachian catheter.

*Three cases of injury to the jaw inflicted by the Surgeon during operations on the mouth.*

Case IX. A boy with a dentigerous cyst (follicular odontome) at the angle of the mandible. After the contents of the cyst had been evacutated, I was trying to reduce the size of the cavity by crushing in the cyst walls; whilst doing so I felt the thinned and expanded bone break through. A four-tailed bandage was applied, and the fracture united in due course without giving rise to any trouble.

Case X. A precisely similar accident happened to me whilst I was operating on a dental cyst in connection with a carious lower molar. In this case also the patient was a boy, but I was not aware that I had fractured his jaw until the first time I saw him after the operation.

Good union occurred.

Case XI. A short time ago I was operating on a lady's nose. During the operation the mouth was widely opened with a gag to enable me to pass my finger into the nasopharynx. When the operation was concluded she began to talk unintelligibly, as patients often do when recovering from anæsthetics. I paid no particular attention at first, but presently I heard her say "My jaw is stiff; I can't shut my mouth." Then I found that there was a unilateral dislocation. On reducing this, her speech became at once clear and intelligible. She had recovered very quickly from the anæsthesia, which had not been deep.

*Tumour of Submaxillary salivary gland. Operation; Collection of saliva in wound.*

Case XII. A medical student noticed a small lump the size of a marble in the left side of his neck, close by the lower corner of the hyoid bone. I diagnosed it as an enlarged gland, probably tubercular. I removed the tumour, and found that it was closely adherent to the lowest part of the submaxillary salivary gland. During the operation he had a sudden violent attack of coughing. This might have been due to the presence of mucus in the throat, but inasmuch as he took the anæsthetic (chloroform) very quietly and nicely, I think it was due to stimulation of the superior laryngeal nerve during manipulation of the tumour.

The wound healed by first intention. When I removed the dressings and took out the stitches (a week after the operation) I found that there was a swelling just as big as that for which I had operated. In the meantime the supposed gland was subjected to microscopic examination, and proved to be a new growth exactly resembling the tumour so often found in the parotid gland. My first impression was that the growth must be highly malignant, and that recurrence had already taken place. In a few days, however, I was able to detect fluctuation. A tenotomy knife was then inserted through one end of the scar, and about half a drachm of viscid saliva evacuated. There was no further trouble. It is now about three years and a half since the operation, and there is no sign of any return of the disease.

*Tubercular glands of neck, secondary to carious teeth. Operation; Injury to Parotid gland.*

Case XIII. A young lady was sent to me by Mr. Frank

Farmer. She had a lump in the left submaxillary triangle, obviously a glandular swelling. She had had some trouble with her lower molars on that side, which Mr. Farmer had treated. However, in spite of the removal of this source of irritation, which I have no doubt was the cause of the glandular enlargement, no diminution in size took place. I therefore advised her to have the lump removed. I operated on her, and excised two tubercular glands. One of them was very closely adherent to the parotid salivary gland, and had to be dissected off it, some of the lobules of the latter being injured in the process. I dressed the wound five days after operation, and found it healed, but there was a fluctuating swelling about twice the size of the original glandular tumour. I reopened one end of the wound and drained away about two drachms of clear watery saliva. The saliva continued to leak into the wound for a week. During that time I kept in a small guage drain. The wound healed soundly, and there has been no further trouble with it.

In this case it seems to me pretty clear that the tubercular infection of the glands below the jaw took place through the carious teeth. I believe that tubercular infection occurs in this way more often than is generally admitted. When we remember that tubercle bacilli have ready access to the mouth, by ingestion of tuberculous meat or milk, and that tubercle bacilli have actually been demonstrated in the pulps of carious teeth, it is not to be wondered at that infection of the glands of the neck should occur.

It is worth while mentioning that this patient was a healthy country girl with no tubercular history, either personal or family. I therefore hope that the removal of these tubercular glands has at the same time removed all tubercular nfection from her system.

# DENTAL MECHANICS.

By Harry Rose, L.D.S., Eng.

## Part IV.—Appliances and Devices for the Correction of Dental Irregularities.

(*Continued from page* 252.)

The following case (Fig. 41), is that of a young lady of twenty-four, whose right central was being pressed outwards and away from its neighbour. As she had a great objection to anything in the shape of springs or bands being visible, the following treatment was adopted.

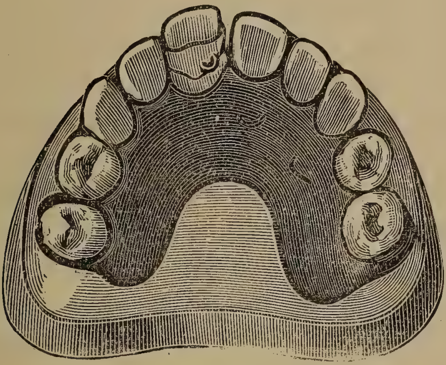

Fig. 41.

A dental alloy plate was made with clasps to encircle the bicuspids on each side. Then a fine silver band was adapted to fit the front tooth, and was cut away to about one-sixteenth of an inch where it came round the front of the tooth, thus presenting very little for observation. On the palatine aspect where the band was left broader, it was nicked with a sharp pair of shears and lapped to fit the back of the tooth, this was quite sufficient when the band was soldered up again, to prevent any slipping on the tooth when traction was put upon it.

Fig. 42 shows the band on the palatine, and Fig. 43 the same on the labial aspect.

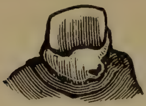

Fig. 42.

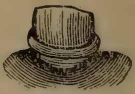

Fig. 43.

In Fig. 42 will be seen the little loop soldered to the cervical margin of the band. In the palate of the case two holes were drilled, into which two pieces of wire were soldered; these were bent so that a band could be looped over the one more distant, whilst the other kept the band on to the surface of the plate.

An india rubber band cut from a small rubber tube was now ligatured to the loop on the band, and the other end of the band was passed over the last wire hook on the plate and then pressed under the other. The plate was then inserted in the mouth, and the metal band was drawn forward and passed over the offending tooth. As the silver was left with a dull surface, it was scarcely noticeable, and in about eight or ten days the tooth was drawn into position. The band encircling the tooth was then soldered to the plate, which then did duty as a retention plate.

The band also acted as an inclined plane and pressed the opposing tooth out of dangerous contact.

If India rubber bands are employed in cases such as the one illustrated and in a similar manner, there can be no possible objection, it is when they are left unguarded that the danger comes in, and too much care cannot be exercised by the teacher in bringing these dangers constantly before the notice of the student.

We have a power in the elasticity of a piece or ring of rubber that is perfectly under control, and of great value, but to render it safe it must be ligatured to the plate or to the teeth.

Springs made of pianoforte wire are now extensively used for moving teeth. They may be of the simple form as shown in Fig. 44, which are bent so as to spring against the misplaced tooth, or they may have a coil so as to increase their springiness.

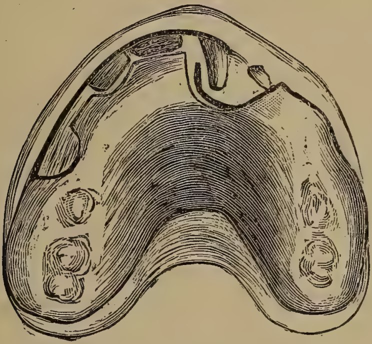

Fig. 44.

These springs are practically modifications of the Talbot spring (Fig. 13), one end being cut short at the coil and fixed in the vulcanite plate, while the free end is bent so that it will act against the offending tooth. A little screw post should keep the coil in position and prevent displacement. In ordinary cases the free end of the spring may simply press against the neck of the tooth, but where one has a strong canine to press outwards, the spring may be so bent that it presses slightly under the gum, and so gets a greater leverage on the tooth.

(*To be continued.*)

British Journal of Dental Science.

LONDON, APRIL 1, 1898.

## ADVERTISING.

It is a sign of the advancement of our profession that the practice of public advertisement is regarded with disfavour and reprobation by an increasing proportion of those upon the Register. In ours, as in other learned professions, the attempt of any member to assume a pretended superiority over his fellows, and so obtain an advantage, is now considered an unprofessional act. In some cases we consider the offence of advertising a much more pardonable one than in others. For instance, the statement in a newspaper that a dentist attends a certain town on a certain day is in a different catagory to the advertisement affirming that a certain dentist's work is better than any other dentist's, or that his methods have some unique advantage unknown to his less favoured brethren.

That there is a large amount of advertising in every profession no one will deny. It is in the nature of some men to thrust themselves forward, and no matter in what class of Society they may be, they will lose no opportunity of being *en evidence.* In one grade it may take the form of public advertisement, printed cards and notices, display of handiwork and touting by means of canvassers ; in another it may take the form of a liberal display of brass plate, or widely distributed change of address notices, or prominence in political, municipal, or church affairs. Another method is to write a book on some dental subject, which is intended for the edification of the public, and in which the impression is conveyed that the talented author is an authority on such matters; lectures to the public on dental subjects, the lecture well advertised with the lecturer's name and qualifications; Press notices by the willing reporter of the talents of the practitioner, and his success in awkward cases: taking a leading part in entertainments for local charities, singing and reciting in public, etc., are all well-known means of advertisement.

It is perfectly clear that some of the actions which we have enumerated are perfectly harmless in themselves, and it all depends on the motive which actuates the person performing them as to whether they are unprofessional or not. If a man has special gifts and talents which make the exercise of them a source of usefulness or pleasure to his fellow-men, it would be absurd to hold that his being a professional man is a barto his taking a position in society and in political or municipal affairs, or anything else which would make him a useful citizen. The criticism of those who condemn these proceedings often arises from envy, owing to the fact that the critics are either unable or too supine to do the same. We have even heard the rancour of this kind of folk extend to the talented wife of a brother practitioner. We must also bear in mind that although some practitioners may in these matters offend against good taste, yet they may be well within the code of professional ethics.

Although the advertiser in some form or other will be always with us, there is no doubt that the flagrant, vulgar type will diminish as time goes on. The chief hope lies in educating our students to form a high ideal of their profession, and to try to live up to it. They in turn will educate the public. This will be naturally a slow process; a quicker one for the grosser kinds of advertising will be attained by the General Medical Council exercising its penal powers just as strictly in dental as in medical cases of disgraceful professional conduct. Whatever tends to degrade our profession must inevitably react to the detriment of the public under its care, and although the public will take a long time to see this fact, it will be discovered by them sooner or later.

Smoking Concert.—A highly successful Smoking Concert, promoted by the Students of the National Dental Hospital and College, was held in the small Queen's Hall on Saturday, March 19th. Dr. Cunningham filled the Chair, (literally and figuratively), and made a most genial chairman. The attendance was large, and a very lengthy and varied programme was carried through in a manner which reflected the greatest credit on all concerned, especially the Honorary Secretary, Mr. Farmer. Among the artists who appeared we may mention Senor Arbos and Senor Rubio, who played the violin and violincello respectively, in their usual delightful manner; Signor Valentini, who gave the "Toreador" song from Carmen, in excellent style: Mr. Herman Vezin, who recited a charming poem of Lady Dufferin's, and who responded to a vociferous encore by telling a couple of quaint stories; and Mr. John Proctor, that veteran *raconteur*, who is a standing refutation to the gibe that Scots have no sense of humour. The names of Mr. William Nicholl the tenor, and Mr. Fred Russell the ventriloquist, were also down on the programme, while the comic element was also well represented. A feature of the evening was the programme, the front of which had been designed and executed in black and white, by Mr. Bennett, one of the Students. The centre revealed a full-length portrait of the Chairman in a *blouse* holding a dental mirror in his hand, while a gas apparatus fully charged lies at his feet. The Concert Committee as cherubs hover round in a cloud of tobacco smoke. The programme was carried through without a hitch, and the behaviour of the students, while sometimes hilarious, was never unseemly.

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Chinosol.—This antiseptic has been used as a dressing for putrid pulp canals and for root filling for some time past, and it seems to answer admirably. Iodoform is objectionable on account of its odour, and chinosol makes an excellent substitute, having a powerful bactericidal action. As an antiseptic mouthwash after extractions it can be recommended as it is perfectly harmless, and does not discolour the teeth like Condy's fluid.

THE PUBLIC AND ITS TEETH.—The lay press of late years has devoted a large amount of space to dental matters, not only in its advertisement columns—which it prefers no doubt—but also in the news space. Sometimes the information is highly technical and cannot be understood by a large proportion of readers. For example, in an article on "How the teeth grow," in a contemporary lay journal we read :—"Prior to the period when the lips of the primitive dental groove meet, an indentation, or furrow, takes place in the connective tissue adjoining the string of epithelial cells which form the neck of the enamel organ. This furrow constitutes what Goodsir termed, the "cavity of reserve," and it is filled up by epithelial cells continuous with the epithelium of the neck of the enamel organ." Or we meet with some rash statement by some would-be authority, such as, "All teeth that are discoloured are without living pulps." We have only to point out that teeth discoloured by the "green stain" of childhood, or by smoking, by drugs or by fillings, need not be "dead teeth." However, we are glad that the desire for dental information is on the increase, as it shows that interest in these matters is becoming more general.

THE COMPANY AS A PERSON.—Among the amendments which the New Zealand Board of Pharmacy propose to make in the Pharmacy Act of 1880 is one defining the word "person" "to include any corporation, whether established by charter or otherwise, and any company or society duly registered in pursuance of any Act of Parliament." We are glad to see that New Zealand is setting us such a good example in dealing with the "one-man Companies," and other like combinations which seem at present to set the laws relating to "persons" at defiance. We hope that before long our Companies' Act may be amended, and we know that a deputation of doctors and dentists has already been received by the Secretary to the Local Government Board. We know that officials are very slow to move, but the present state of things is too intolerable to last very much longer.

ASH'S TOOTH SHADES FREE FOR EVERYBODY.—A reference to our advertisement pages will enable our readers to discover an acceptable offer now made by the well-known firm of Ash & Sons. Most people like to "get something for nothing," and when it is worth having, dentists will not be behind the rest of Humanity. We are, however, waiting to learn whether the donors are also to discharge the cost of carriage, and if the offer extends to our readers throughout the world. If so, the bill for the Colonies, to say nothing of America, may be expected to amount to a considerable sum. In default of any definite statement and to ensure applications being considered without delay, we would advise Provincial and Colonial subscribers to forward the cost of delivery, as we can scarcely expect this to be included. We find an old set we have weighs under 1¼ ozs.

TOOTH TINCTURE.—The following is recommended as a good "toothache tincture":—

| | |
|---|---|
| Ac. tannici ... ... | ℥j. |
| Ac. benzoici ... ... | ʒij. |
| Camphor. ... ... | ℥j. |
| Gum. mastic. ... ... | ℥ss. |
| Gum. juniperi ... ... | ℥ss. |
| Cocain. mur. ... ... | ʒj. |
| Chloroformi ... ... | ℥iv. |
| Spt. vini rect. ... .. | ℥xiv. |

Mix.

Treatment for Exposed Dentine.—Sometimes when much absorption of the gum has taken place, the tooth becomes very sensitive to changes of temperature. The following method has lately been recommended to guard the tooth from thermal changes. A gold plate is fitted over the exposed fangs, a model being first taken, which is pared away at the neck of the teeth so that a band would fit beneath the gum. Chloro-percha is painted beneath the gum and the plate fastened with a pin and cemented the same as with a crown. The relief has been found immediate, though before the plate was put on the patient could not bear either hot or cold water in the mouth. The tooth has remained quite firm and is doing good service. In another case the symptoms were the same, but complicated by decay on the distal surface. The cavity was filled with artificial dentine, then a split band was fitted around the tooth, which was tightened up by means of a screw when in position. This case has proved equally successful.

Complete Removal of the Stomach.—It would seem that the stomach is not a necessary part of our economy, for there is a successful instance on record, in which Professor Maydl removed the whole stomach from a man. A little over an inch at the cardiac end was left, and this was united to the duodenum. Not only did the patient make a perfect recovery, but he was well many years later, and able to digest better than ever before in his life. It is stated that he was living on the roughest of country fare. In Czerny's well-known experiments on dogs, the duodenum dilated and took on the functions of the excised stomach, and the same probably occurred in the cases recorded in man.

Superstition versus Science.—A good story is told of the celebrated surgeon, Prof. Ricord, of Paris. In a little town near Orleans lived, more than fifty years ago, with great reputation, a bone-setter, professing to cure all the ills of humanity; no doctor had ever attempted to supplant him. One day, however, a young doctor, fresh from the faculty, arrived in the town and installed himself close by the bone-setter. It was not long before the young doctor found out that his diplomas were of little use in competition with his rival. One day he was called to see the blacksmith, who was very ill, and, after a proper examination, he prescribed for him according to the rules of his art, and said that he would return the following day. That same evening, however, the bone-setter stepped in and told the patient that if he took what had been ordered for him he would be dead before the moon set a second time. Needless to say, the bottles were thrown out, and the charms of the medicine man substituted. The blacksmith got well. Exposed to constant affronts and a thousand and one annoyances, the unfortunate doctor determined to abandon the struggle, and returned to Paris with only a few shillings in his pocket. He died a few years ago, leaving a colossal fortune, a brilliant renown, and a celebrated name, and a statue has been erected to him opposite the hospital where he worked the greater part of his life in the interest of humanity and science. His name was Ricord.

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AN ARTIFICIAL EAR.—Dr. Fericke of Kiel, has made an artificial ear for a young lady of Lubeck, who was born with only one natural one, that is to say, all the external organ on the right side was wanting. There was only a little pad of skin perforated in the centre. A model having been taken an ear was modelled and reproduced in *papier maché.* It is firmly held in position by means of a comb and a flat steel spring joined together and concealed by the hair. The orifice of the artificial ear corresponds to the opening in the pad of flesh, so that hearing is not interfered with, and the whole arrangement presents a very natural appearance.

THE PLATE THAT DID NOT FIT.—Dr. Percy Green, in an amusing article on reminiscences, relates the following:—

"While working at the chair one afternoon, a man, for whom I had made a plate, opened the door and in a very audible voice notified me that "that plate didn't fit." As my patient in the chair was quite a prominent lady of the town, I of course. didn't want her to get the impression that my plates were failures, so I quietly answered him that perhaps the suction wasn't just right. "Maybe that's it," he replied, "but if I was in your place, I'd learn 'em to suck before I sent any more of 'em out." It is needless to say that I have tried to profit by his homely, yet excellent advice.

DR. BONWILL AND CATAPHORESIS.—Dr. Bonwill does not believe in wasting time over cataphoresis when a long inspiration (Nature's anæsthetic according to him) will do just as well or better. "Let any of you hurt a finger and how soon it is put in the mouth and a violent inhalation taken several times until the pain is relieved. The infant in crying violently while in pain, from an accident, is relieved and falls to sleep from the constant sobbing and increased inspiration. All temporary teeth I extract by this method in one sudden inhalation or diversion of the will and not a tear or complaint. Two or three teeth can be extracted while the breath is held in the lungs. You know now why I abandoned electricity for obtunding sensitive dentine and extracting, for this revelation of how nature relieves. I am led to assert here to-day that all this cataphoresis in dentine, is only the work of the current pure and simple, and while I can annul pain in a few minutes by the current, I will not fool with it, as, by my present mode of practice, it is no longer worthy of my notice, and could you follow me day by day at the chair, you would adopt the means which would not rob you or your patient of that which neither can ever replace or have paid for remuneratively. I hold that it is all nonsense for you to practice deluding yourselves and robbing the public of valuable time, which, unless you get paid for every minute in the application of electricity by cataphoresis, you are a loser also."

All we can say is that we saw Dr. Bonwill demonstrate this method at Brighton many years ago, and on that occasion it was anything but successful.

MILITARY DENTIST.—Among appointments not usual in French regiments is that of a regular dentist. The difficulty for the immediate present has been got over in brilliant fashion by the medical officer attached to a certain battalion. Among the reserve men fulfilling their "twenty-eight" day's service was a well-known Parisian dentist. The doctor had him relieved from his ordinary duties and set him to work to attend to the teeth of all the men under his care. The dentist has done his task in thorough workmanlike style, and keen regret is being expressed among the privates that his time will soon be up. It is a pity he is not retained permanently.

PRIZES FOR DENTAL STUDENTS.—Mr. Thomas Fletcher of Warrington, has announced that, as the prizes in his name at the Manchester school had been for many years so successful in raising the standard of work, he had arranged for a prize fund of £20 per annum at both the Liverpool and Manchester schools annually to the year 1906. Messrs. C. Ash and Sons offered at once to practically increase these by supplying at a low price instruments or tools in exchange for this, thereby increasing the practical value of the prizes largely. Where does poor London come in? She is already behind Liverpool and Manchester as regards University teaching, and now further advantages are being showered upon the Northern Capitals!

Any of the non-cohesive foils, with one exception, which is not a pure gold foil, can be made cohesive by continued annealing, and all of the cohesive foils without exception, can be made non-cohesive by exposing them to the fumes of ammonia.

# *OBITUARY.*

## DEATH OF SIR RICHARD QUAIN.

With regret we announce the death of Sir Richard Quain, the eminent physician. The deceased Baronet had been in ill-health for a considerable time, A few weeks ago, however, all hopes of his recovery were abandoned, and, in spite of the unceasing efforts of Dr. Mitchell Bruce, Mr. Treves, Mr. Herring, and Dr. Harold, Sir Richard gradually became weaker, though until Saturday night he was quite conscious of all that was being done for him. During the night he relapsed into a comatose condition, from which he never emerged, passing peacefully away in the presence of his family. The deceased physician had some time since undergone two severe operations, and it is considered that the weakness following upon these, coupled with advanced age, had produced a general break-up. With Sir Richard Quain's death the baronetcy which was conferred upon him in 1891 becomes extinct, his family consisting only of four daughters.

Sir Richard Quain was not only a learned doctor, valued by his patients and held in honour by his professional colleagues, but an accomplished man of the world, a genial and witty companion, and a well-known and welcome figure in society.

The author of "Quain's Anatomy" was cousin to the editor of "Quain's Dictionary of Medicine," and, like him, a native of Cork County. Another cousin was a distinguished surgeon at University College.

The late Sir Richard was born at Mallow in 1816, and after serving an apprenticeship to a surgeon at Limerick, according to the old fashion, he came to London at the age of twenty-one, and entered as a student at University College. He used to say in later life that he owed everything to his own industry, having come over from Ireland a mere lad without money or influence. And that, no doubt, was true; but his name ensured him a favourable reception at the College and Hospital, where Jones Quain was lecturer on Anatomy, and Richard, the latter's younger brother, already assistant surgeon. It was, doubtless, their presence which determined his choice of a medical school, and though they could not have helped him had he not helped himself, to have relatives on the staff is no small advantage to a student in several ways. Young Quain soon justified his title to the family name by a brilliant career in the class-rooms and wards. In three years' time he took his M.B. degree at London University with high honours. In those days examinations were less crushing, and the period of preparation required was much shorter than it is now, when the curriculum is swollen by an inordinate number of scientific subjects; but the comparatively short course before qualification had the advantage of allowing a young man to devote more time afterwards to practical work in the wards. Quain spent several years in this way as house-surgeon and house-physician at University College Hospital, taking his M.D. degree in 1842 with exceptional distinction.

He was thus able to start life with an unusually thorough knowledge of his work. He did not wait to obtain an appointment on the senior staff of his hospital, but applied himself to private practice, and in 1848 became assistant physician to the Brompton Hospital for Diseases of the Chest. His chief scientific and hospital work was done in connection with this Institution, which furnished him with material for those special studies on the heart that mainly established his professional reputation. He was also connected with the Seamen's Hospital at Greenwich and the Ventnor Consumption Hospital. The University of London, the General Medical Council, and the Royal College of Physicians offered an ample field for the exercise of his administrative ability in the interests of the profession; and it is a striking proof of the high estimation in which he was held that he should have been called upon to fill so many of those honourable offices which are usually reserved for men who represent the great medical schools and general hospitals. In 1860 he was nominated by the Queen a member of the Senate of London University. He was also a representative of the Crown on the General Medical Council, becoming successively a trustee, treasurer, and eventually president—a position of great dignity and importance. His connection with the Royal College of Physicians was long and honourable. He become a Fellow in 1851, and afterwards advanced in due course through various offices to that of Vice-President. He served on the Royal Commission appointed in 1865 to investigate the Cattle Plague, and a few years later obtained the coveted distinction of Fellowship of the Royal Society in recognition of his scientific work in pathology. All the leading medical Societies in London of which he was an active member elected him at one time or another to the honour of the Presidential Chair. Finally, he was appointed Physician Extraordinary to the Queen, and in 1891 was made a Baronet. His success in private practice as a consulting physician was commensurate with this long list of dignities. No man was ever more welcome in the sick room, where his ready sympathy, his kindly manner, and keen sense of humour won the confidence of his patients, not less surely than his knowledge and ability gained the respect of his colleagues. He was always the friend as well as the physician.

Towards the dental profession Sir Richard's attitude was of a sympathetic nature on the whole, and he cordially welcomed any efforts to improve its ethical tone. His position on the General Medical Council gave him great power in Dental as in Medical politics, and it was used, as a rule, with discretion. Not many years ago he distributed the prizes to the successful students of the Dental Hospital of London, to which Institution he was consulting physician, on which occasion his genial and sympathetic speech was much appreciated. His death creates a vacancy in the General Medical Council, which we hope may be filled by a dentist.

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Aphthous Stomatitis.—In stubborn cases, either of the following may be used with advantage:—

| | | |
|---|---|---|
| R | Acid. salicyl. | 2.0 |
| | Alcohol | 10.0 |
| | Glycerin | 20.0 |

Mix

Or

| | | |
|---|---|---|
| R | Sodii salicyl. | 20.0 |
| | Aq. destill. | 100.0 |

Mix

Or

| | | |
|---|---|---|
| R | Hydrarg. bichlor. | 0.1 |
| | Aquæ destill. | 50.0 |

Mix.

# Abstracts of British & Foreign Journals.

## OPERATION UPON THE GASSERIAN GANGLION BY THE HARTLEY-KRAUSE METHOD FOR FACIAL NEURALGIA: THREE YEARS AFTER.

By J. Lynn Thomas, F.R.C.S.,
Assistant Surgeon to the Cardiff Infirmary,

### History.

Mrs. M., aged 61, was referred to me by Dr. J. D. Williams for advice in November, 1894, and after careful consideration we advised an intracranial operation upon the nerves affected. She was taken ill quite suddenly in 1887, with tic doloureux of the right supraorbital and infraorbital nerves; this attack lasted about five weeks, and one of her teeth was extracted. Two years later another violent attack came on suddenly, and attacked the infraorbital and inferior dental nerves, the supraorbital nerve escaping this time; she had six teeth extracted with no relief to her pain, and ever since she has not passed one day without a twinge of pain. The stabbing pain woke her up when sleeping at night or by day, occasionally it was so intense that she became delirious; the nerves affected were the right infraorbital, inferior dental, and the auriculo-temporal. She had three tender spots; the points of exit from their canals of the infraorbital and inferior dental nerves, and one near the angle of the mouth on the upper lip.

She had tried many drugs, the constant current battery, and change of air, with no relief. During the last twelve months life had been a misery, and her few hours of ease had been spent in dreading the onset of another attack; she had only drunk liquids, and these only on the left side of her mouth; she could only open her mouth a short distance without bringing on a "terrible twinge" along the course of the inferior dental nerve. On this account she lived on liquids alone, and had lost a great deal of flesh. A slight draught of air, the sudden movement of her body, or the slamming of a door brought on an attack along the course of the infraorbital, inferior dental, and auriculo-temporal nerves. The right half of her mouth was swollen, and the red portion of the lips dry and encrusted, owing to her fear of moistening them; the swollen condition was possibly due to trophic or vasomotor changes, but the volitional immobility of the whole right side of the face might perhaps have contributed to the existence of this condition.

She had not combed the right side of her head for a long time owing to tenderness and the fear of exciting a sensory spasm. There was almost complete analgesia over the distribution areas of the second and third divisions of the fifth nerve; sense of gentle touch was unimpaired, but hard touch was described as tenderness; sense of heat was less acute than on the left side; the condition of the tongue could not be tested for obvious reasons. She had had ten children, and had always led an active life. Her existence was one of utter misery, and she said her only hope of relief from pain was death.

I advised under the circumstances an intracranial operation in preference to multiple external operations, because I considered that the disfigurement would be much less by the first method, and the risk to life about the same in both; whilst the time required for, say, a Carnochan's operation and that for exposure of the Gasserian ganglion leaves but little room for choice.

## OPERATION.

On Dec. 17th, 1894, I exposed the middle fossa of the base of the skull by the Hartley-Krause method, and at once divided the superior maxillary nerve with ease, and then pushed the end out of sight into the foramen rotundum, its proximal end was eventually torn away from the partially divided Gasserian ganglion. I divided the Gasserian ganglion until I saw the motor root of the inferior maxillary nerve lying underneath it, my intention being to save it. When I was cutting about halfway through the inferior maxillary nerve at the foramen ovale, there was a sudden and rather alarming flooding of the field of operation with blood, which was stopped by plugging and removal of the brain retractors. Proceeding with the operation, I had to stop after tearing away the superior maxillary nerve owing to intermittency of the brain pulsation being noticed by Dr. J. D. Williams. The wound was drained for twenty-four hours and fourteen days later the patient left the private hospital with the wound healed up.

### AFTER-HISTORY.

Within a month she had a few twinges of pain along the course of the inferior dental nerve from its exit at the mental foramen to the middle of the lower lip. She has had occasional recurrence of the pain along this nerve up until now (December, 1897), but for months at a time she has been quite free from any pain. There has been no recurrence of the pain along the second division of the trigeminal nerve nor along the course of the auriculo-temporal nerve.

I once saw her in an attack of pain along the inferior dental nerve, and I suggested re-opening the scar to complete the operation originally intended, but she replied that "The pain is not so bad as that."

The areas of distribution of the auriculo-temporal and infra-orbital nerves were quite anæsthetic for several months after the operation, but now she knows that one touches her and the parts feel "quite numb" or, as the patient prefers it, "quite deadified." There was never any motor paralysis.

*British Medical Journal.*

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## IRREGULARITIES.

### By Dr. SMITH.

The remark that is frequently made that the correction of an irregularity is easier than the permanent maintenance of the results I think is untrue. The disappointment which has resulted in many well planned cases of orthodontia has been due to the too early application of retaining appliances. I made it myself, and by experience I have learned that after accomplishing a change in the teeth, if you allowed the appliance that did the work to remain for some time after the teeth have been brought to a satisfactory position, so that the new bone may be deposited, then the newly-made appliance for retaining more readily holds the teeth in their changed position.

The best retaining appliance is a fixed appliance. To illustrate this you take, for instance, protrusion of the anterior teeth which have been brought into line. If an appliance can be made by putting bands on the molars and cementing them to place, with a wire running from the molars around the front of the teeth, the ends being soldered to these bands, you have the ideal retaining fixture. But it is rarely that you can use these fixed appliances, not because it is a mechanical impossibility, but because patients object to retaining appliances that cannot be removed. Many of the patients for whom we are called on to do regulating are young girls just going into society, and whenever anything of the kind has to be made the families of the patients insist that it shall be something that can be removed when it is thought desirable to do so, and so I find that to accommodate this great demand of society I am obliged to devise some appliance which the young lady can remove just before stepping into the ballroom, and put on again immediately after returning home. Of course it takes longer for the teeth to become fixed in this way, because the tendency of the teeth to go back to their old position will assert itself upon the removal of the pressure, even if only for a few hours, until such time as the new tissue can hold them firmly in the desired position, and yet that is all we can do under the circumstances. But the fixed appliance is without question the ideal appliance, and the removable retaining appliances are, as a rule, better made with some form of vulcanite with metallic attachments. Of course it should be the aim in making a retaining fixture to have the smallest possible contact with the teeth, in order to prevent the possibility of decay. It requires great skill to make such an appliance and have the bearings accurate, and where teeth have only been moved out or in arrangement of that kind is admirable.

*Dental Brief.*

## TREATMENT OF PULPLESS TEETH.

By Vincent M. Murjer, D.D.S.

When I read of the different methods of treating devitalized teeth, I marvel that we have in our profession, gentlemen who seem to think that there are cases that require so many treatments before bringing a tooth in a condition to fill.

Only the other day, I read of a gentleman who opens the pulp chamber of a tooth in the quiescent state and after thoroughly cleaning out the canals, washes with hot water and bi-chloride of mercury, then packs cotton saturated with spirits of camphor in the canals and leaves it for twenty-four hours. When the patient returns he pursues the same treatment with iodoform. Then the same gentleman goes on to say that when the tooth is ready for filling he uses hot air and goodness knows what not and finally fills the tooth.

For a dentist who desires to linger over his work this method is excellent, or a dentist who hasn't much to do it is the finest kind of a fine treatment. But, when you are in a busy office you must boil things down to the smallest kind of a margin as is consistent with first class workmanship, and get rid of all the horrid smelling remedies which go to make a dental office a young hospital.

The simplest method for treating a pulpless tooth is the method employed by the late Prof. Frank Abbott, the Dean of the New York College of Dentistry. This treatment with one addition is the method I use and have yet to record my first failure.

It is a clean, neat and odorous treatment and a patient would not know they were within ten miles of a dental office as far as the odour of medicine is concerned.

A patient presented herself at my office with a swollen face and upon examination, I found an abscess on the apex of the left upper central root ; she had been suffering for ten days, but was feeling much better when I first saw her.

There was a discharge of pus from the gum margin but no fistulous opening ; an ordinary sized cavity was in the tooth. On account of the discharge of pus which had been going on for some days, the soreness had quite disappeared so I was able to excavate the cavity and expose the canal when I removed portions of dead matter and allowed the pus to run down the canal.

I made up a 1-10,000 bi-chloride solution, and right here would say, that by buying John Wyeths Tablets and dissolving it in a pint of Krystateid distilled water you get a 1-1,000 solution which can be kept in stock and from it make 1-10,000 whenever you need it. The 1-1,000 solution will last for six months without deteriorating.

Inject the 1-10,000 solution through the root until the canal and abscess seems clean, and then a fine broach with a little cotton, is to be dipped in a 40° solution of sulphuric acid and worked up and down the canal a few times, then using an alkalic bi-carbonate soda, saturated solution which brings away any foreign substance that might be lying in the root, after which use your bi-chloride again until the cotton shows no stain. Then take a solution of chloride of zinc, forty grains to the ounce of water and inject it in the abscess bag.

This you will find has thoroughly cleaned the canal and abscess bag of all pus and dead matter and now the root is ready for *immediate* filling. No further treatment is required and all other treatments are a waste of good time, both to yourself and to your patient.

The method for filling the root is very simple and very successful as years of practice has proved.

The root is allowed to remain moist. The bi-chloride and oxy-chloride of zinc is mixed to the consistency of cream and pumped into the canal by the use of a smooth broach, care being taken to reach the apex of the root ; this is allowed to crystallize when the filling for crown may be put in.

The question might be asked how could you remove the root filling if the trouble should arise. I will answer that you will not have the trouble if ordinary care is taken in cleaning the root as the oxy.chloride zinc mummifies any matter remaining in the root.

I know I have left portions of pulp in the root, it being impossible to remove pulp on account of the crooked canal.

In such cases where patients complain of soreness, I apply to the gums over affected tooth equal parts of the concentrated Tr. aconite rad and iodine.

More than four hundred cases have been treated by this method without a single failure, and I earnestly recommend all who have not tried this method to begin at once and you will be charmed with the result.

*Dominion Dental Journal.*

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## DOES PYORRHŒA COMMENCE AT THE APEX OF A TOOTH?

At a meeting of the Southern Dental Association, in a discussion on Pyorrhœa, Dr. Pierce gave utterance to the following startling statement :

We too often make the mistake of taking the symptoms for the disease. Pus is simply an expression of pyorrhœa. By pyorrhœa alveolaris we mean "pus in the socket ;" it is a conspicuous symptom, and we seek to eliminate that condition. Five years ago I noticed in connection with this condition of pus in the sockets other systemic conditions, and by continued observation I found that in four-fifths of the cases I also had some expressions of a gouty condition of the uric acid diathesis. In four-fifths if not in nine-tenths of the cases, there was some expression of the uric acid diathesis. I took the accumulation from the roots of the teeth to Professor Congdon, and asked him to analyse them carefully. He reported that they consisted largely of urate of soda, urate of lime, and uric acid crystals. I said to the patients, I would suggest that you begin systemic treatment for the uric acid diathesis; place yourselves on a diet as though for a case of gout. I also prescribed lithia and hot water. You cannot imagine my joy when I found the gums healing up at once with no local treatment. I said, Why did I not see that before? These patients that I have been treating for pyorrhœa all have gouty symptoms. Treating the patients for gout cured pyorrhœa. But pyorrhœa does not stay cured. You can arrest the progress of the disease, stop the accumulations and the exudations of pus; but let your patient indulge in elaborate dinners and suppers, eat heartily of meat, and drink wines, and he must suffer for it. The waste products in the system are not eliminated, and pus in the sockets again becomes profuse. According to their habits of life, you must see them at greater or less intervals; some every year or two years, and others every month or every week. In a large number of cases the teeth will eventually be lost. Pyorrhea is an expression of the uric acid diathesis. I have found this to be true of all my patients except two, who were diabetics. There is a condition of pyorrhœa belonging to diabetes that is as readily differentiated as whooping cough from measles. It is characterized by a peculiar expression of the gums; an inflammation of the gingival borders due to tartar on the necks of the teeth. That is not true of pyorrhœa; it is amenable to local treatment, and they do not lose the teeth. It is an encroachment of tartar upon the soft tissues; but in true pyorrhea the system is loaded with waste products, causing a congestion at the apical space, with an exudation of lime salts, deposited at the apical end of the tooth from the serum, before there is any destructive action at the gingival border. The serumal exudates work along the root *from the apex* to the border along the side of the root. When the gingival border is reached, micro-organisms enter and break down the tissues.

Dr. Arrington: Do I understand you to distinctly say that pyorrhœa begins at the apex of the root?

Dr. Pierce: Emphatically, yes; at the apex, along the same line as in the joints in connective tissue. It is at the end of the root that true pyorrhœa begins, without any disturbance at the gingival border; the opening through the gum tissue is opposite the apical end of the root, the pulp being alive, though the external appearance is the same as that of an abscess from a dead pulp; the discharge is from the region of the apical end of the root, with the pulp intact. It is amenable to treatment. Remove the accumulation through that opening in the tissues. That is why I say that true pyorrhœa is an expression of the uric acid diathesis, and must be treated constitutionally, with the addition of local treatment for the external expressions of the disease.

*Cosmos.*

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# NOTES ON A CASE OF CANCRUM ORIS. RECOVERY.

By John MacMaster, M.B., Ch.M., Edin. Sydney.

Lucy W—, 5 years, was recovering from a mild attack of typhoid fever, and, to all appearances, was going on well. The first thing that drew my attention to the condition of her mouth was the extreme fœtor af her breath, combined with profuse ptyalism. On May 29th, I first noticed the presence of a dark slough on the internal aspect of her left cheek. On careful re-examination on the following day, I found a rapid extension of the disease had taken place. The gangrenous process now invaded the left angle of the mouth, the mucous membrane of the alveolus of the upper jaw, and hard palate.

Having made the diagnosis of Cancrum Oris, I asked Dr. Bean, of Wallsend, to see the case with me, which he kindly did.

On the evening of the 30th May, the child was chloroformed; a gag inserted; the gangrenous tissue removed; and the whole of the affected surface was swabbed with pure carbolic acid. The carbolic acid was applied on cotton wool, which was inserted in an ordinary sponge holder. Next day I repeated the application of carbolic acid, and on June 1st, Dr. Bean again saw the case, and another application of carbolic was made.

The above applications arrested the process in the hard palate, but did not improve to any great extent the condition of the alveolus, cheek, and lip. A deep groove could be felt in the cheek, between the floor of the ulcer and the skin. Four of the teeth in the superior maxilla loosened, and were extracted, and the bare bone of the alveolus was exposed. The phagedenic process now extended along the upper lip, towards the middle of the mouth.

On June 2nd, 4th, and 5th, I applied, in a similar manner to the carbolic, fuming nitric acid. The nitric acid acted remarkably well, and two days after the last application the whole of the affected area was free from disease, with the exception of a portion of the upper lip. Another application was made to this portion, which quickly responded to the treatment.

The tissues round about were œdematous and brawny. The child was fed by means of nutrient enemata; but after three days the rectum rejected everything. By the aid of the feeding-bottle, a great quantity of milk, brandy, beef-tea, etc., was given by the mouth, and the child did not seem to experience any difficulty in swallowing. The nozzle of the feeding-bottle was easily inserted far back in the mouth, by the fact af the absence of the teeth mentioned. The mouth was swabbed with a weak solution of boracic acid five or six times daily, and a mixture of quinine and iron was administered.

Shortly after the phagedenic process had ceased, a slight facial paralysis appeared, which increased somewhat for the next few days. The child during the whole time was fairly comfortable, and did not seem to suffer much pain. Its hands were tied, to prevent it picking its lips.

When all seemed to be going so well, an abscess appeared at the angle of the left inferior maxilla. This was opened, and there was a copious discharge for some two or three days. Immediately after the opening of the abscess, the child rapidly improved.

On a return visit to Minmi early in July, I had another opportunity of seeing the child; and all that remained was the facial paralysis, and a piece (the size of a threepenny bit) as it were punched out of the angle of the mouth. On opening the mouth, a portion of the alveolus was seen, and a deep groove along the inner aspect of the cheek. The child was then running about, and gaining weight rapidly.

*Remarks.*—The chief points in the above case are:—Its rarity of occurrence, and recovery. In this special case, the recovery after such extensive ravages in the mouth. The advantage of fuming nitric acid over carbolic. The importance of employing nitric acid from the onset.

I may add, Dr. Bean confirmed the diagnosis, and that neither of us expected the child would recover. Some of the ramifications of the facial nerve were undoubtedly involved in the process. The eventual disfigurement ot the child, but not to the degree one would have expected if he had seen the case when the disease was at its height.

In conclusion, the above case seems to bear out the statement of Dr. Bristow when he says:—" It is not a rare thing to find patients in whom gangrene has committed the most frightful ravages, who neither suffer pain, nor have suffered it, who maintain a good appetite, and continue cheerful."

*Australian Medical Gazette.*

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## MEDICAL QUALIFICATION IN THE U.S.A.

Dr. W. D. Hamaker, a member of the State Board of Medical Examiners, writing to the Pennsylvania *Medical Journal*, gives a list of some of the answers picked up in the examination. As examples of spelling he quotes tong, saults, brougham (for broom), serratim (for ceratum), fley (for fly), flyes (for flies), shugar, fur-tree, rouchsheel (for rochelle), pultz, (for pulse), soar, puss (for pus), corpustle, and pacients. From the materia medica and medical examinations he gives the following specimens:—

" Hydrogen *gass* is *de*generated from the urea." " Cantharides is derived from the root of the plant." " Pix liquida is from the Pinus *Somniferous* group." " Cantharides is derived from the destructive distillation of the Spanish fly." " The malar bone articulates with the occipital bone." " Picrotoxin is an alkaloid of senna and rhubarb." " Spartein and eserine are alkloids of somnis papaverum." One candidate said that " Spartein was derived from Sparta," and another said it was derived from Spartus. Among the remaining gems of the examination were the discoveries "that vinegar was an antidote for mineral acid poisons," that "an infusion of Spanish fly was one of the official preparations," that the "uriniferous tubules secrete the seminal fluid," that "belladonna locks up all of the secretions except the urine and feces," and that "the differential diagnosis between epilepsy and hysteria is that in epilepsy they fall on the stove and burn themselves, and in hysteria they don't." A student of obstetrics said that in rigid os he would "decapitate or perform craniotomy, or would put on the forceps and deliver at once." Another in performing version "would put his finger in the child's mouth and bring the chin under the os *pubis* and hold his hand over the mouth to prevent the liquor amnia from choking it." We also learn "that the endocardium is a mucous membrane which weighs 2 oz., and is separated from the pleura by [the pericardium;" that the function of the optic nerve is to contract the pupil and move the eyeball," and "that in cerebral hemorhage the patient may vomit the cerebro-spinal fluid."

But the most surprising statement of all is the sentence with which the doctor concludes his contribution. "And yet all these men have diplomas!"

## EUCAINE IN DENTAL SURGERY.

Zaloga (*Khirurgya*, February, 1898) considers eucaine a more valuable anæsthetic in dental surgery than cocaine. In the course of six months he made use of cocaine in 220 cases of tooth extraction while eucaine was used in 320 cases for the same purpose In each case the hydrochlorate of the alkaloid was used, and about 1 c.cm. of solution was injected deeply into the gum in two places on each side of the tooth. A 2 per cent. solution of hydrochlorate of cocaine was sufficient to produce local anæsthesia; but a 5 per cent. solution of eucaine hydrochlorate was necessary to get the same result. The doses of the two alkaloids were therefore 0.02 and 0.05 g. respectively. Toxic effects were observed in 46 per cent. of cases where cocaine was used. The symptoms of poisoning ranged from a slight giddiness to faintness, cold perspiration, dilated pupils, sickness, and irregular respiration. None of these symptoms followed the use of eucaine. The only draw back in the use of the latter alkaloid is the subsequent appearance of a painless swelling over the seat of injection. This peculiar effect was not due to any septicity of the solution, as the latter was carefully tested bacteriologically, and found free from germs.

# RACHITIS.

### By Philip F. Barbour, M.D.

The etiology of rachitis is a much mooted point, We know that bad hygiene and lack of fresh air, sunlight and exercise are prominent factors in its causation, but that they are the only causes is negatived by its prevalence among the negro population, who have plenty of sunlight and air, at least in this section of the country. However, the consensus of opinion is narrowing down to the conclusion that improper food and bad hygiene will produce rachitis. Lack of fat in the food seems to explain the beginning of rachitis better than any other hypothesis. Numerous experiments upon the lower animals under various conditions of hygiene and foods have been made. Apparently the absence of fat was felt more than that of any other ingredient of the food. In children fed upon milk deficient in fat, condensed milk and the Liebig's foods—rachitis is very apt to develop. It is frequently seen in children at the breast, if the mothers are in very poor health, or if the infants are nursed only at night, the mother being at work during the day, and given during the day cow's milk, which is often deficient both in fat and proteids. That the food has a very intimate connection with the development of rachitis is indicated by the age at which rachitis is liable to arise, namely from the sixth month to the end of the second year. This is the time in which the breast milk becomes poor in quality, the child is weaned and is fed ona mixed diet which its digestive organs are totally unable to properly assimilate. During this period the child usually gets very little milk. Experiments seem to show that the young of any animal will develop rachitis, however varied the diet, if it is deficient in milk.

The belief that rachitis is due to a diminished amount of lime in the body is probably a mistake in taking the effect for the cause, and the lactic acid theory is confessedly untenable. The fact that infants raised on condensed milk or the various brands of prepared foods are sometimes quite fat does not negative the theory that the lack of fat is the exciting cause of rachitis. Although the body can manufacture fat from the sugars or from proteids, it is probably not normal fat, for when one of these fat children is taken sick, it is marvellous how rapidly the fat disappears.

Teething is dependent upon the condition of the health of the child. If rachitis develops early the first teeth are delayed for months, but if rachitis develops late the teeth that would normally appear at this time are delayed or the teeth are cut irregularly, for instance, the canine before the molar. In rachitis, the eruption of the teeth is accompanied by much greater nervous disturbances than are usual in healthy children.

*Pediatrics.*

## THE RELATIVE VALUE OF FILLING MATERIALS.

Dr. Edmund Noyes, in a discussion, says :—The first thing to be thought of and considered, and when a tooth is to be filled, if I do not fill it with gold, I feel called upon to determine in my own mind the specific and definite reasons for excluding gold in that particular case, which naturally and on general principles would be the thing to use. The reasons why it stands first in my estimation are chiefly that it fulfils the mechanical and physical requirements and possibilities of a filling better than any other material used for that purpose. It admits of definite and accurate handling. It can be put against walls and margins and consolidated and finished, so that we may be reasonably sure of the mechanical results we have obtained and of the permanence of the material we have put in there. The question of permanence after a thoroughly good operation has been made with gold relates to the teeth and surrounding circumstances, and not to the material itself, and in my opinion the mechanical perfection of the operation is so much more important a factor in their durability than any other question relating to the material of which they are made, that such considerations relation to them cover a great deal of ground and are of the greatest importance. The skill required, the time that it takes, the severity and strain of the operation upon the operator and patient are serious difficulties and objections to the use of gold; but in my own experience the results to be obtained are sufficient compensation.

Probably the second in importance of materials is amalgam, considering the range of its use and the amount of service which it must be depended upon to perform: but the material has been so uncertain, and the results that could be gotten with it have been so unsatisfactory as to give to many of us a feeling of discouragement and distrust and regret as we think about the material and the history of the operations that we have made with it, and that we have seen that others have made with it. After all that can be said against it the fact remains that there is a vast field which it must occupy in the future as it has done in the past, and however many times it is and has been used when gold should have been employed, there still remains in the hands of almost all operators a multitude of places in which it is the best thing that we can use. There are a good many things that enter into the question of a material to be put into the teeth besides the absolute one as to which we could make the best operation with if we had a block of dead or inanimate matter under our hands and unlimited time and compensation available. There are other things that must be considered, and these will very often turn the decision toward amalgam instead of gold. I think there are some quite erroneous notions generally prevalent in regard to the skill and knowledge that are required in the handling of amalgam as compared with gold. It is true enough that teeth can be filled with amalgam, that cavities can be shaped and the material mixed up and put in there with the exercise of incomparably less skill or knowledge than it will take to make a gold filling which will be as presentable and look as well any time during the first month after it is inserted. But to command all the possibilities of the material, to be sure of avoiding all possible errors in the use of amalgam, is a task which very few men have ever accomplished, and is an incomparably more difficult one than in the case of gold, because with gold the conditions of success are comparatively few, they are definite, they can be controlled and understood. With amalgam they are very many, they are exceedingly variable, exceedingly difficult to understand and to control, and there is not one man in a hundred—I guess not one in a thousand, I know I do not myself—who comprehends the nicety and accuracy of treatment from the first step in the manufacture of the alloy to the last finishing of the filling, which are necessary in order to get out of amalgam what ought to be gotten out of it, so the skill and knowledge required are really greater, if we are ever to get the best results the material is supposed to be capable of, in the case of amalgam than of gold. I do not think we have made much progress yet toward the making of amalgam fillings as they will be made some day or other. It is constantly said that in average conditions, under average operators, large amalgam fillings will preserve the teeth longer than gold will, and sometimes it is attributed to the ease with which it can be handled, sometimes to the antiseptic or therapeutic quality of the material, and sometimes to the average imperfection of the gold fillings that are usually made. My own observation and experience go to show that gold fillings will preserve the teeth much longer than amalgam fillings. My books will show that so far as my own practice is concerned, I won't claim that would be an important contribution to the solution of the whole question, because I know that I have not done the best possible amalgam work, although I have tried hard to learn how to do it. In a majority of cases in my practice, teeth filled with amalgam have required refilling sooner than teeth filled with gold under apparently similar conditions, and the cases in which I have been able to use gold throughout the mouth to the exclusion of amalgam, and those in which the use of amalgam has been most closely restricted, have been the most successful.

*Dental Review.*

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# FORGING AND TEMPERING INSTRUMENTS.

By Dr. Wm. H. Steele.

*Forging.*—Great care should be taken not to overheat steel as it destroys the grain and makes it brittle. Small instruments should never be heated to a point that will raise scales while being worked. In drawing a point all sides must be hammered alike, otherwise the point is liable to spring in tempering, as the side hammered most will have the finest grain. When a point has once been forged flat, do not attempt to hammer it back to a round or square, as such manipulation will spoil the instrument.

Steel should not be hammered after the colour fades; until in the final heating, when it should be hammered to a dead black, and the last strokes should be on the cutting edge.

*Rough Dressing, Tempering.*—After the instrument is forged to shape, as well as can be with the hammer, it should be dressed up with suitable files, then tempered. For fine tempering I prefer night or a dark corner, in order to better watch the colour. For drills heat the point to a cherry-red and dip in mercury; for excavators and small chisels, make a shallow tray ⅛ in. deep and fill with the following: 1 oz. of wax and ½ oz. rosin. Heat the point to a deep red and plunge into the composition. This method is preferable to tempering and drawing, for small instruments, as it is more certain and requires less skill to produce uniform results. For larger instruments, I prefer to temper and draw, using a bath made of sperm-oil and tallow; heat to a deep cherry-red, dip the same as in a water bath and draw to a pale straw colour. If a chisel is desired very hard on the cutting-edge, place that part of the instrument on a piece of cold steel, hold the shank in the flame and draw to a straw colour, allowing the colour to run no farther than to the portion resting on the steel.

*Finishing and Polishing.*—After the instruments are tempered they can be finished on the lathe with an Arkansas stone, and polished with crocus, using three grades, coarse, medium and fine; use the first two grades on cotton buff wheels, and the last one on a chamois buff.

*General Hints.*—Broaches, explorers and other small instruments can be annealed very soft and uniform by placing them in a piece of iron tubing; fill around with iron or brass filings, plug the ends of the tube, heat it gradually to a red heat, cover over with hot sand, and allow to cool over night. To temper small springs, heat to a cherry red and dip into water, then place in a dish and cover with oil, hold the dish over the flames until the oil ignites, then set away and let cool in the oil. In tempering in oil or water, always dip the instrument perpendicularly; if dipped on a slant, it is liable to cause the instrument to spring, especially if the bath is very cold. When tempering light work, the instrument must be handled quickly, for the edge where the best temper is required is the smallest part and cools first, often rendering the temper defective, just where it is desired most perfect, It is a good idea to have an assortment of blank instruments made up, dressed to a nice taper, annealed soft and laid away for an emergency ; when needed the point can be tempered, and the remainder of the instrument being soft, it can readily be bent to reach and fit any cavity desired. By this means a large amount of hard work and valuable tooth substance can often be saved in excavating for filling.

*Dental Register.*

## CONGENITAL TEETH.

Dr. J. W. Ballantyne recently read a paper in which he gave particulars of three additional cases of congenital teeth. (1) Mother, a multipara, who had nursed 6 cases of scarlet fever during her pregnancy. The presentation was a face, and the presence of the teeth rendered the diagnosis of this rather difficult. There was a "caul." The teeth were the upper central incisors, one well and the other poorly developed. The boy is now 16 months of age, vigorous, healthy, had eight teeth, including the two above noted, which appeared likely to remain, as they were larger and stronger than the others. The child was reared on the bottle. The combination of face presentation and congenital teeth was rare. The congenital teeth neither dropped out nor required removal, and they were well formed. (2) This case occurred in South Jarra, Melbourne, but full details were wanting. The teeth dropped out, necrosis of the alveolar process followed, and the child died. Whether the death was due to the presence of the teeth or not is uncertain. (3) The father had syphilis twelve years before the birth, and was treated for two years with iodide of potassium. The mother was non-syphilitic. One previous child nine years before, who suffered from eruption and died of marasmus. The weight of the present fœtus was 7 lbs. The teeth were two lower central incisors, movable in their sockets, and the alveolar process for about three-quarters of an inch was elevated three-eighths of an inch above the level of the gums on either side, and was also movable. Below this hinge process was an exostosis in the middle line of the symphisis menti, which disappeared later. The mobility and elevation disappeared later, and the teeth became fixed. The mother's nipple was wounded before the teeth were discovered, and a mammary abscess resulted. A few days after birth the child developed pemphigus, and when six weeks of age, "snuffles" and a papular eruption appeared. The latter disappeared under the use of mercury. Simultaneously, the teeth besame soft and were removed by the finger-nail, but the roots remained. At the age of 11 months, the roots were filled with granulation tissue level with the gum, and no other teeth had appeared. Some of the irregularities here might have been associated with the syphilitic state, but it was possible that the process was an extra alveolar dental sac, containing two supernumerary as well as congenital teeth.

*British Medical Journal.*

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Absolute alcohol for softened and sensitive dentine, and for drying cavities, may be prepared as follows: add one part of potassium carbonate to four parts of the ordinary, or officinal alcohol. Owing to the great affinity carbonate of potassium has for water, it abstracts the latter to a sufficient degree to answer all practical purposes.

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Do we ever think how repulsive it must be to some patients to have a mouth-mirror, which has been removed from another patient's mouth and not cleansed, thrust into their mouth? Always cleanse the mirror *in the presence* of the patient. Most patients are too polite to say anything, but they may think all the more.

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Some kinds of food have a direct local influence on the teeth, namely, fruits. Oranges, lemons, apples, grapes and berries contain besides sugar and flavouring material, an acid, which by long continued application is capable of dissolving out the lime salts of the teeth. Citric acid, which exists in large proportions in lemon and orange juices, seems to have the strongest corrosive action on the enamel of the teeth of any of the fruit acids. Tartaric acid or the acid found in grapes comes next in order.

*Odontographic Journal.*

# Dental News.

## CLAIM AWARDED AGAINST AN UNREGISTERED PRACTITIONER.

At the Bradford County Court, Mrs. Elizabeth Hamilton, of Beamsley Street, Manningham, sued Mr. Herbert Bairstow, chemist, of 264, Barkerend Road, Bradford, to recover a sum of 30s., for a set of artificial teeth.

Mr. Law, who appeared for the plaintiff, said that as long ago as 1892 the defendant undertook to make a set of teeth for the plaintiff for a sum of £2 10s., and 7s. 6d. for painless extractions. The teeth were paid for and were supplied, but never fitted, and after the woman had been "hundreds of times" to get alterations made the defendant had said that he was unable to do any more for her. The teeth were then taken by the plaintiff to another dentist, who said that they could not be made to fit, and supplied for 30s. another set. The plaintiff now sought to recover the amount paid for the second set

Mr. Durrance, who was for the defendant, said that the plaintiff was a member of a clothing club, and the contract for the purchase of the teeth was made with that club. The club, however, did not pay to Mr. Bairstow the whole of the money paid by the plaintiff. He contended that for the first two years no complaint was made of the teeth not fitting, and that the first complaint was made after an illness which affected the shape of her mouth.

The plaintiff said that this was not so, and the ailment of her mouth was partly due to "a bit of tin" on the back of her teeth.

In the course of further evidence it appeared that the plaintiff had suffered for some years before and since the teeth were fitted from an affection of the throat.

The defendant, in his evidence, said that he was a chemist, but was not a registered dentist, though he had served an apprenticeship as a mechanical dentist.

His Honour held that there existed a contract on which the plaintiff was capable of suing, and he gave judgment for the plaintiff for the amount claimed.

# DENTIST AND WAR CORRESPONDENT.

There died at the age of 42 only, at South Shields, about a fortnight ago, Dr. G. F. Tate, a dentist, who was in Egypt during the times of Arabi Pasha's ascendency, and acted as correspondent for several English newspapers. He witnessed the massacres at Alexandra in 1882, which followed the bombardment by the British fleet, was present at the battles of Kassassin and Tel-el-Kebir. He received the Khedival war medal and other decorations. About seven years ago he settled down in South Shields, and followed his profession as a dentist.

# DEATH FROM SWALLOWING AN ARTIFICIAL DENTURE.

Mr. A. Braxton Hicks held an inquiry at the Lambeth Coroner's Court, with reference to the death of Albert Britton Bustin, thirty-four years of age, a Custom House officer, lately residing at 80, Appach Road, Brixton Hill, who died from the effects of swallowing his false teeth.

Mr. William Henry Bustin, an artist, of Palace Yard, Hereford, said the deceased was his brother. The widow was so upset that she could not attend the inquest, her mother being dangerously ill. She had explained to witness however, that on the night of the 7th inst., the deceased, who wore false teeth, had steak for his supper, and they went to bed at 9.45. At about midnight she was awakened by his sitting up in bed, patting his chest, and exclaiming, "Oh, my God, my God !" He asked for a basin, and tried to vomit, at the same time requesting her to search for his teeth in the bed. She then dressed him, and he went to St. Thomas's Hospital.

In reply to the coroner, the witness said his brother, who had been used to a seafaring life and was reckless, was in the habit of sleeping with his teeth in his mouth, and he probably kept putting off having the plate repaired because it did not cause him discomfort.

Mr. John Francis M'Lean, house-surgeon at St. Thomas's Hospital, stated that the deceased came there at 2 a.m., and said he had a difficulty in breathing and swallowing, and had lost his teeth. Witness felt the plate in the throat. The deceased who seemed all right, was well able to speak. Witness tried to extract them with ordinary forceps, but found that he would have had to use more force than the patient could bear without an anæsthetic. The senior surgeon accordingly placed him under the influence of ether, and the plate and five teeth were extracted. The plate caused a wound in the throat which became septic, and caused death.

The jury returned a verdict of accidental death.

## DR. EVAN'S WILL.

The dispositions of the late Dr. Thomas Evans, are disputed by some of the surviving relatives. It will be remembered that the deceased left about £1,000,000 to be spent in erecting a museum in Philadelphia, which was to be called the Dr. Thomas Evans Museum. It was to contain all the late dentist's personal belongings, decorations, and art collections, and to be a lasting monument to his memory. To carry out this will he appointed certain executors, who, in the event of the will being faultily drawn up, were to became the universal legatees, with the moral injunction laid upon them to fulfil the expressed wishes of the deceased. Any beneficiary under the will who attempted to attack its provisions was to be excluded, in virtue of this attempt, from the heritage assessed to him.

Tho Doctor's nephew, the Marquis of d'Oyley, and his heirs, were deliberately, and by name, excluded from the will. However, legal measures are now being taken to prevent the executors of the will, (who also occupy an implied trusteeship for the institution to be at some time or other founded by some one not named) from declaring the will null and void, with the exception of one clause which would enable them to put the entire estate in their own pockets. The second stage of the litigation was for the appointment of a liquidator, who shall be unconnected with any of the conflicting interests. The case came before a Paris Judge, sitting in Chambers. The application was not granted.

## A DILATORY DENTIST.

At Marylebone County Court, Miss A. Heron summoned Mr. Anstruther, her dentist, for the return of two guineas.

Miss Heron stated that five months since she paid him the sum of one guinea for three false teeth. She had never received the teeth, and now claimed the return of the guinea and a further guinea as damages for non-delivery.

"I have been fourteen times for them," she explained, "and he has sent them to me this morning, but I don't know that they will fit."

"I made her a set which did not fit," the defendant admitted. "I took a fresh impression, and am willing to fulfil my part of the contract."

Mr. Ruegg remarked, "Well, really now, you ought to have completed the matter before now. It is too bad. I will adjourn this case to give you a further opportunity of making the teeth fit.

## THE DENTAL HOSPITAL OF LONDON.

The fortieth annual meeting of governors of this institution was held at the hospital, in Leicester Square, on March 17th. The committee, in their report, which was unanimously adopted, regretted the necessity of calling attention to a slight falling off in the amount received from annual subscriptions, a diminution which they hoped might be due solely to the very unusual demands made on the public during the Diamond Jubilee year, and they trusted that their next report would show an improvement in this direction. The total amount received for the general fund was £2,677 13s. 7d. including £109 7s. 6d. from the Prince of Wales's Hospital Fund, £109 7s. 6d. from the Hospital Sunday Fund, and £141 18s. from the Hospital Saturday Fund. The contributions to the building fund amounted during the year to £2,928 14s. 11d., including £577 5s. received from the trustees and members of the Managing Committee, in addition to their previous donations. The erection of the new hospital buildings has not progressed so far as the committee wish, owing partly to difficulties with various public authorities (in meeting these difficulties they have to acknowledge much assistance from the Charity Commissioners) and partly to the advance in price of building material and other unavoidable causes. The medical report showed that the number of operations performed in the hospital had increased from 19,255 in 1874 (when the present buildings were taken over) to 57,654 in 1896 and to 62,512 in 1897, and the committee thought that these figures alone should be sufficient to recommend the claims of the institution for increased help and support. Donations or subscriptions will be gladly received by the bankers, Messrs. Barclay & Co., Limited, 1, Pall-mall East, S.W.; the treasurer, Mr. Joseph Walker, M.D. St.And.; or the secretary, Mr. J. F. Pink, at the hospital, Leicester-square, W.C., the latter of whom will be very pleased to supply any information concerning the hospital.

To remove the stain of tincture of iodine, from either the hands or napkins, apply strong ammonia. The stain of nitrate of silver, on either the hands or napkins, can be easily removed by covering the spot with tincture of iodine, wait a few moments, then apply strong ammonia and rub well.

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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# FORMALDEHYDE IN THE TREATMENT OF PULPS.*

By J. F. Colyer, L.R.C.P. Lond., M.R.C.S., L.D.S.Eng.

For some time formalin (which is a 40 per cent. aqueous solution of formaldehyde) has been employed in surgical and medical practice as an antiseptic, germicide and preservative, and has been found to give excellent results.

Formalin possesses the property of rapidly hardening soft tissues without in any way causing shrinkage, and this, combined with its powerful germicidal properties, suggested its use as an agent in the treatment of the pulp. As far as I can gather, Lepkowski was the first to employ this drug in dental surgery, and in 1894 published a work upon the subject.† The results obtained seem to have been successful, but the severe pain produced by even weak solutions was a distinct disadvantage. During the past year a formaldehyde cement has been introduced by Abraham under the name of formagen, and this preparation seems to give such excellent results that I think it is worthy of discussion at the hands of this Society. Any satisfactory line of treatment by which we could replace devitalization of the pulp and all the subsequent and tedious operations upon the root canals would be a great gain, not only to the operator, but also to the patient.

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* Read before the Odontological Society of Great Britain.

† *Formaldehyd als Therapeutisches Mittel in der Zahnheilkunde Verhandlungen der Deutschen Odontologischen Gessellschaft*, vii. bd. Heft 1 und 2.

Formagen, which is a secret remedy in the sense that its composition is not definitely given, is composed of a fluid and a powder (both of which are said to be charged with formaldehyde), which, when mixed together so as to form a cement, slowly gives off formaldehyde. In order to satisfy myself with regard to the composition of formagen, I sent some samples to Mr. E. Lucas, of Messrs. J. Bell & Co., Oxford Street. The powder he finds to be calcium carbonate and a caustic alkali, and the fluid represented approximately by the following :—

| | | |
|---|---|---|
| Meythyl salicylate | ... | 1 part |
| Eugenol | ... ... | 60 parts |
| Phenol | ... ... | 39 ,, |

The first sample sent was one which I had had in use for about one month. Mr. Lucas failed to find the slightest trace of formaldehyde. I then sent him an absolutely fresh sample and asked him to test both powder and fluid for formaldehyde, and an examination of this showed the slightest trace of formaldehyde.

Similar results were also obtained by my friend and colleague Mr. Percy Richards, who, in addition to the silver test, employed Schiff's reagent, but with negative results.

In a paper on "Clinical experiences with Formagen," by Alfred Kunert,[*] the author states that the amount of formaldehyde vapour given off by the cement cannot be detected by the sense of smell (a 5 per cent. solution of formalin emits an intensely pungent odour) but can be determined by the formaldehyde reaction (reduction of ammoniacal silver oxide solution). He also states at the temperature of the body, 37·5° C., he was also able to obtain the reaction.

These results seem, therefore, to be at variance with those obtained by Messrs. Lucas and Richards, but it is possible that the reduction of the ammoniacal silver oxide solution obtained by Kunert may have been produced by eugenol, as this drug acts in a similar manner to formaldehyde on the silver solution.*

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[*] *Deutsche Monatschrift für Zahnheilkunde.*

That formagen possesses great germicidal and preservative properties seem to be demonstrated by the researches of Max Bauchwitz.† Fresh pulps from calves' teeth were placed in small glass tubes which ended below in pointed orifices, the pulps being so arranged in the tubes that the apical portions were placed at the fine ends of the glass tubes. The pulps were then infected at the apical portions with bacteria from freshly extracted teeth, formagen being applied at the opposite ends and sealed in with cotton wool and wax. The tubes were then placed with the infected parts of the pulps into reagent glasses, which were partly filled with agar-agar culture, and were then deposited in an incubator at the temperature of the body. Max Bauchwitz found that "after one day the reddish pulp was already converted on the surface into a solid, jelly-like structure, which on the second, third, and fourth day, and so on, became uniformly tough up to the extremest point. The peculiar pungent, formalin odour was completely maintained, and nowhere were processes of putrefaction to be observed. *Macroscopical and microscopical*

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* Since reading this paper Mr. Richards has undertaken a test with the view of ascertaining whether formaldehyde vapour is given off from the cement.

The fluid and powder of formagen were mixed together in a test tube so as to form a cement. The orifice of the tube was then corked and sealed and the tube left for twenty-four hours. At the end of this period the cork was removed, water poured into the tube and the cork immediately replaced. The water was then shaken up with the view of dissolving any formaldehyde vapour present. On subsequent testing, a reaction was obtained with the silver solution but not with Schiff's reagent. This latter consists of a dilute magenta solution carefully bleached with a minimum amount of sulphurous acid. If any aldehyde is present the colour of the solution is restored.

† *Deutsche Monatschrift für Zahnheilkunde.*

*investigations demonstrated that no bacteria were present.* The macroscopical investigations were arranged in such a way that I transplanted the pulps, which were taken out of the small glasses upon plates or saucers with agar-agar culture, and these again were deposited for various periods in the incubator. The plates remained completely sterile, *and hence is proved the extremely powerful disinfecting and antiseptic quality of formagen.*"

From observations, too, the same author considers that formagen acts as follows:—The eugenol and carbolic acid act as anæsthetics, the dragging pain at times complained of by the patient being due to the former drug, slightly increasing the hyperæmia already present. The formaldehyde vapour then gradually permeates the pulp tissue, killing all pathogenic germs and eventually converting the pulp into a jelly-like homogeneous mass, and stasis occurs.

From clinical observations formagen seems to be an excellent material for the treatment of inflamed and exposed pulps. I have used it now for some nine months in almost every type of case and have found it produce excellent results, but whether these will be permanent time alone will prove. Curiously enough, although I have used formagen somewhat freely, I have so far had only one case return complaining of after pain, and in this the application of lin. iodi. to the gum soon relieved the troublesome symptoms. This success is, of course, only chance, and I am quite aware that some cases must fail. In using formagen I always protect the pulp from pressure by a large metal cap; this step is not, I believe, adopted by some. The cap, however, seems an essential to success, for however carefully one may insert a filling over the formagen cement, pressure on the pulp may occur, and so cause failure, for we all know by experience that in the conservative treatment of "exposed pulps," removal of any pressure on the pulp by means of a metal cap is an essential factor to success and should be adopted equally whem employing formagen. I hope members present who have used formalin or formagen will give their experiences, for nothing assists our knowledge of a subject like the free discussion of that subject.

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# FORMALIN.*

### By C. J. Boyd Wallis, L.D.S. Eng.

Formaldehyde, formic aldehyde, or formalin, was discovered by Hoffman in 1867; Loew demonstrated its germicidal powers, and Berlioz and Trillat proved it a powerful disinfectant, free from poisonous properties. It is met with in commerce under the name of "formalin," which is a 40 per cent. solution of formaldehyde, having a specific gravity about 1·070$_0$, possessing a very pungent and characteristic odour. In more concentrated solutions the formaldehyde tends to revert to the polymeric para-formaldehyde, which remains a comparatively inactive white solid, therefore the 40 per cent. solution is the strongest, which will remain permanent. Some formaldehyde, which has been in my possession over four years, in a corked bottle, still retains its pungent odour and its power to coagulate albumen.

Formaldehyde ranks high as a deodorant. Either the solution or vapour will almost instantly remove the putrid odour from decomposed animal or vegetable matter, a putrid nerve, mal-odourous breath, urine, fæces, etc.

The action of formaldehyde on gelatine, gelatinous and albuminoidal substances, as an antiseptic, disinfectant, and deodorant, has placed it in the front rank as a bacteriological, medical and commercial agent.

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* Read before the Odontological Society of Great Britain.

As a hardening agent in microscopy, for the preservation of foods and vegetable structures, it promises to be of the greatest value. The vitiated air of a sick room may be immediately purified by fumigating with formalin, which has a strong affinity for nitrogen and sulphuretted hydrogen. It has no injurious effect upon furniture, silk, wool, cotton, linen, leather, and substances of a like character, and is, therefore valuable as a disinfectant of clothes and sick rooms. Iron and steel are acted upon by the gas and its solutions, which appear to have no effect upon brass, copper, nickel, zinc, and gilt articles.

The vapour given off by the solution is extremely irritating to the eyes and the mucous membrane of the nose and throat, therefore care is necessary, not only in using it on the teeth, but also in handling strong solutions, as its action on the skin is similar to that of strong carbolic acid.

The following table gives some of the purposes for which formaldehyde may be employed :—

| A Solution of Formaldehyde containing— | Effects produced. |
|---|---|
| 1 part in 125,000 parts... ... | Kills anthrax bacilli. |
| ,, ,, 50,000 ,, ... ... | Prevents the development of typhus bacilli. |
| ,, ,, 32,000 ,, ... ... | Preserves milk for several days. |
| ,, ,, 20,000 ,, ... ... | Preserves wines, weak alcoholic liquids and beer, also milk for several weeks. |
| ,, ,, 2,500 ,, ... ... | Destroys the most resistant micro-organism in 1 hour. |
| ,, ,, 2,000 ,, ... ... | For rinsing casks and vessels intended for liquids liable to fermentation. |
| ,, ,, 500 ,, ... ... | As a mouth wash. |
| ,, ,, 250 to 200 ,, ... ... | A general disinfectant solution for washing hands, instruments, etc., in surgery, spraying in sickrooms, and as a deodorant. |
| ,, ,, 150 to 100 ,, ... ... | For hardening microscopic tissues, which should be immersed for a considerable time to give best results. |
| ,, ,, 50 to 25 ,, ... ... | Sterilises surgical catgut, silk, etc., by steeping. |

| | | | |
|---|---|---|---|
| 1 part in | 25 ,, | For quickly hardening and preserving for microscopical sections: longer immersion in a weaker solution gives better results. | |
| ,, ,, | 10 ,, | For hardening very firm tissues | In pathological and histological work. |
| ,, ,, | 5 ,, | For hardening firm tissues | |
| ,, ,, | 2½ ,, | For hardening soft tissues | |

The above proportions refer to formaldehyde, but if formalin be used then 2½ parts of the latter (40 per cent. solution) may replace each part of formaldehyde.

It was while experimenting with formaldehyde, for commercial purposes, and testing its power of coagulating gelatine that I noticed its deodorant properties, and this led me to test its value in the treatment of the teeth. I found the action of formaldehyde upon certain substances somewhat remarkable as it converts them into physically different products. In the course of my experiments on plaster and gelatine I found that paraffin subjected to the action of formaldehyde is converted into a white friable powder which gives off formic gas when subjected to heat but it does not so readily melt. It is a powerful solvent for tannic acid and this will prove useful in combination with gelatine in dental and general surgery. I have also found it an excellent local anodyne, giving instant relief to the most severe toothache; this I have proved several times in my own mouth. I have used it several times in combination with arsenic and thus far no pain has followed. I will give one case out of several that have been under treatment at my hands in which three different methods were adopted in the same mouth. Some two years since, I had an opportunity to put formaldehyde to a severe test. In January, 1896, a lady consulted me about her two upper central teeth badly decayed, the right was dead, discoloured, abscessed, with a putrid nerve; this I prepared in the usual way and filled the nerve canal with formic-tannic-catgut, and cement filling to contour; the left central nerve canal I filled with formic-paraffin, and crown with cement to contour. In February, 1898, I again saw the patient and found the cement fillings faulty and the teeth further broken down. I therefore decided to excise the two centrals and crown. On excision I found the paraffin perfectly sweet and aseptic and easily removed; the catgut was in a similar condition but hard and more difficult to remove and appeared like soft healthy dentine. This and other experience leavs me to believe that we shall find the formic-tannic-catgut of the greatest value in root-filling. The third tooth in this case—an upper second bicuspid—was treated in 1896 in a similar way, formic-gelatine to the nerve cavity and amalgam to the crown, this tooth I found perfectly healthy and serviceable.

Several other cases might be cited which have proved equally satisfactory but the above will suffice to show the value of formalin in dental operations. It will form so many combinations that when better understood it will, I think, prove a valuable adjunct to the surgeon's armamentarium as well as to commercial purposes.

I have here a specimen of gelatine which has been subjected to the action of formalin and which renders it insoluble and antiseptic, and when treated also with tannic acid will, I think, prove invaluable as a nerve capping. I have here also some plaster which has been treated with gelatine, and subjected to the action of formalin. Unfortunately, it has been dried too quickly and at too great a heat, consequently it has become slightly browned, and to bring it to perfection it should be subjected to the action of the formalin for a longer time than this specimen has been, but it will suffice to show the result of such a combination.

British Journal of Dental Science.

LONDON, APRIL 15, 1898.

## SHOULD DENTISTS GIVE GAS?

In our issue of March 15th, amongst our Editorial notes and comments, there appeared a question addressed to the *British Medical Journal* by one of its readers and the answer given by our contemporary to its interrogator. As several of our readers seem to labour under the impression that the answer to the query was ours, and have written to us more or less strongly under that misapprehension, we take the opportunity of disclaiming any share in the reply or sympathy with its terms. The query was as to whether "a dentist has the right to administer gas to a patient without the presence of a qualified medical man." The answer vouchsafed by the *British Medical Journal* was, "We are not aware of any legal decision on this point, and it is one on which there may be some diversity of opinion. We think, however, that a dentist not possessing a medical qualification must incur serious responsibility if he administers anæsthetics. He would, we think, have no more right than a layman in this respect, and would be in the same position."

Now in the first place the answer given by the *British Medical Journal* is not the answer asked for by its correspondent. He asks a plain question as to "gas," and receives a reply concerning "anæsthetics." The generic term includes agents both comparatively harmless and dangerous, it includes nitrous oxide gas with its practically clear record, and chloroform with its ever-recurring fatalities. But if the answer were meant to apply to "gas" and "gas" only, we consider that it is not one with which the dental profession can agree. As regards the legal aspect of the case, we believe we are right in affirming that, as the law now stands, any one may administer any anæsthetic, and will escape censure if in the case of a fatality, the jury finds that all reasonable precautions were observed. With respect to the moral side of the question, we are of opinion that the dentist as a rule, has a much more intimate knowledge of gas and its administration than the average medical man. If he has passed through a hospital course he is well grounded, by those most competent to teach him, in the best methods of administration, in the physical signs of nitrous oxide anæsthesia, in the dangers to be confronted, and in the best means to combat them. The medical student on the other hand, usually sees "gas" administered very infrequently, and even then it is generally given as a prelude to ether. As regards "serious responsibility," we deny, as a rule, the seriousness of it, though we should never lose sight of the fact that a responsibility does rest upon us, part of which is that of seeing the patient is fully anæsthetised, a matter in which inexperienced practitioners, medical and otherwise, often err. We undertake serious responsibilities every day of our lives, and it is to fit us for these responsibilities that we undergo our comprehensive and arduous training. To say that we have "no more right than a layman" in undertaking the duties of gas anæsthesia is to say that our training is not an efficient one, and that our experience goes for nothing.

We have always rigidly maintained that the use of chloroform in dental operations is dangerous and wrong whether administered by a medical man or otherwise. Our reasons have often been given in these pages, and need not be recapitulated. We also consider that it is unwise for the dentist to administer "gas" and operate himself without assistance, even though that assistance may be of the humblest kind; and in the case of a female patient a third person must be present. If the patient expresses a wish for a medical man, that wish should be respected, but many persons cannot afford the extra fee, and they should not be deprived of the benefit of a safe anæsthetic upon that account. But while insisting upon our privileges in this matter, let us be careful that no cause be given to our medical brethren or to the public to find just cause for criticism in our method of administering gas, and our operations under it. Let our apparatus and instruments be ample and well kept, our restoratives and assistance at hand, and let ourselves be well versed in the proper steps to be taken in emergency, so that if any untoward incident should occur, we shall have the consciousness of knowing that we knew our duty and per formed it to the best of our ability.

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An Example which might be followed.—At the recently held monthly meeting of the Liverpool Dental Hospital, Sir James Poole in the chair, a letter was read from Mr. James U. Alder, hon. treasurer of the Students' Council, and Mr. R. P. Nixon, the hon. secretary of that body, covering a remittence of £52 16s. which had been realised by an entertainment by the Negro Nomads promoted by the Council at Hope Hall, on 31st January, and requesting that the amount be devoted to the mortgage redemption fund. On the motion of Dr. Waite, seconded by Mr. H. C. Quinby, the cordial thanks of the committee were accorded to the Students' Council for this handsome contribution. Students of other Dental Hospitals please note.

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London Dental Hospital and a Public House.—At a recent sitting of the Strand Licensing Sessions, the Bench were asked by the London Dental Hospital to grant a licence for the rebuilding of the "Duke's Head," which had formerly occupied a position on a site now purchased by the hospital. It appeared that the hospital authorities, desiring to extend their accommodation, had purchased a large amount of ground in the vicinity of Leicester-square, and wished to build their new entrance on the site of the "Duke's Head." The present application was for the rebuilding of the house a little distance away and to cover a larger area Mr. Hinde, barrister, and Mr. Pinhorn represented the

London United Temperance Council, who opposed on behalf of some of the governors of the hospital, Rev. A Mearns and others. The application was refused. We are well aware that the facilities for refreshment are not lacking in the vicinity of Leicester Square, but if the Hospital authorities purchased the licensed premises at a good figure it seems hard that the charity should be deprived of a valuable property by the refusal to grant a new license.

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Suicide from Toothache.—There have been a good many cases of suicide recently from this reputed cause. The latest is that of a young man in West Hartlepool who was found lying on the floor in a pool of blood, with his head nearly severed from the trunk, and a large bacon knife lying beside him. A constable proceeded to the premises, and after examining the body made a search of the shop, and found lying on the counter a scrap of wrapping paper, upon which was written the following lines in pencil:—"I can't stand life longer. I am mad with toothache. Have been up all night.—Yours, R. H. Davidson. God forgive me all. I pray everyone to speak of me as they found me." Deceased had evidently been in a condition of extreme agitation when he wrote these lines, for the characters were ill-formed and not easily deciphered. Deceased was a young man, not more than 23 years of age, had only recently been appointed manager of the shop, and bore an excellent character.

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Edinburgh Dental Students' Society.—The fourteenth Annual Dinner of the Society was held on March 11th, and was as usual a great success. Dr. Noel Paton occupied the chair, and amongst those who spoke were C. E. Page, L.R.C.P. & S., L.D.S., the Dean of the Hospital, F. J. Turnbull. L.R.C.S., L.D.S., Sewill Simmons, L.D.S., and T.R.D. Walkinshaw, L.D.S. The programme or menu card was as usual illustrated by sketches, having a punning relation to dental matters. It was good, although we have seen better, on former occasions. However, we must not be censorious, as the task of finding fresh dental puns must grow harder each year. The best perhaps was "A good retaining point," illustrated by a youth (presumably a dental student) being retained in mid air by the branch of an apple tree catching in the seat of his unmentionables, (is this an advertisement for the wearing qualities of Scotch tweed?) Another was "Pa-late," in which evidently the father of one of the students was depicted returning home with a "wee drappie in his ee."

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SHOW CASES.—There is trouble brewing in Aberdeen. The civic fathers of the Granite City have instituted a crusade against show cases as a disfigurement to their borough. Show cases, boards, and brass sign plates which have been exposed unchallenged for years have been ordered to be removed. A petition signed by 360 shopkeepers and others, has been signed protesting against the procedure, "as many photographers, dentists, shopkeepers, and others, in ignorance of the provisions of the Act, have, in many instances, at great cost, provided themselves with glass show-cases. Show-cases, when kept within proper limits, are not obstructive; they are attractive to look at, and give no incitement to theft, as is the case in the display of loose goods." Perhaps the dentists who are thinking of discontinuing the custom of using a show-case, may find this a suitable opportunity for becoming professional men.

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DENTAL EDUCATION FOR WOMEN.—The second Division of the Court of Session in Scotland, recently decided that the trustees of the late Dr. Henry Muirhead, of Longsdale and Boshyhill, Cambuslang, were bound, in terms of the direction of his will, to found and maintain an institution for the education of women in the physical and biological sciences (but not theological). The purpose of the truster was to enable women students to receive an education to fit them to become medical practitioners, dentists, electricians, chemists, etc. The trustees propose to found a College at Rawcliffe, near Langside. The founder (perhaps we had better not say the "pious founder") evidently wishes women to be everything but parsons.

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A SWALLOWED DENTURE LOCALISED BY THE RONTGEN RAYS.—At Rockendorf, Germany, a young lady by accident swallowed an artificial denture of nine teeth; the plate stopped in the œsophagus. On the advice of her physician she was directed to the surgical clinic of Jéna. They proceeded immediately in practising œsophagotomy. The operation was performed successfully, the plate withdrawn, and healing was rapid. To know exactly the point where the plate was located after deglutition, Rontgen rays were used, and a photograph was obtained. One peculiar effect of the rays on rubber plates is that the rays will pass through the rubber showing only the clasps and the artificial teeth.

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SIR HENRY BESSEMER, the founder of the Bessemer process for the manufacture of steel, died recently at the age of 86. Throughout his life Sir Henry was a fruitful and persevering inventor, and some idea of his activity may be gained from the fact that he is said to have spent £10,000 in patent fees alone. At the age of 18 Bessemer came to London from Charlton, and found plenty of employment in engraving patent medicine labels on steel with a diamond point, and also in modelling in clay. At this time public attention was directed to a system which had grown up of transferring deed stamps from old to new documents, and thus defrauding the revenue. Bessemer set himself to work to devise a stamp which could not be used twice, and placed himself in communication with the authorities. By persevering efforts, extending over several months, and chiefly carried on at night to ensure secrecy, he at last produced a stamp which could not be transferred, was impervious to moisture, and would not yield a duplicate. One of Bessemer's first ventures was the manufacture by a patent process of gold paint. He, his wife, and brother-in-law, used to compound the mixture with their own hands in order to keep the method of manufacture secret. But it is in connection with his metallurgical labours that his name will go down to posterity. The main principle underlying Bessemer's process for the conversion of cast iron into steel consisted of decarbonizing the molten metal by blowing a blast of air through it. This was welcomed as a great improvement on the old process of "puddling," and was soon adopted by ironmasters throughout the country.

FAILURES IN OPERATIVE DENTISTRY.—In a recent paper, Dr. L. F. French enumerates as among the more frequent cases of failure: 1. The use of dull instruments, especially burs, and the lack of keen sharp excavators and chisels in the preparation of the marginal walls: 2. Placing a metallic filling in too close proximity to the pulp. 3. The wrong choice of material, either of the plastics in the wrong places from a desire to complete the work more rapidly, or of gold, where not indicated by conditions, from the desire to obtain a higher fee, or an improper choice through yielding to the desires of the patient. 4. The failure to remove salivary calculus, calling to mind the injunction of Prof. Truman to his classes: *First*, examine well the mouth: *Second*, clean the teeth. This will enable the operator to see what the further treatment should be. Impress upon patients the grand lesson of cleanliness in the mouth as well as of the body; there will be fewer failures in operative dentistry.

TEETH PASSED SAFELY THROUGH THE ALIMENTARY CANAL.—Dr. Cooper Rose mentions a case in which the wife of a publican lay down on her back on a sofa and fell asleep. She was roused by a sense of suffocation. She then discovered that she had swallowed four front teeth on a gold plate furnished with sharp hooks of gold by which the plate was secured to the adjacent teeth. He feared the hooks would give trouble. A few days afterwards, however, when he paid his visit he was met with a cheerful grin, she exhibiting her teeth *in situ* with the declaration that they fitted as well as ever. This is a more fortunate termination than in many cases of swallowed dentures.

ODONTALGIC PILLS.—We do not often hear of pills to be placed on an exposed nerve, but in a book published by S. S. Fitch in the early part of the century we find the following: "In applying medicines to the exposed nerves of the teeth, either to relieve toothache or prepare the nerves of the teeth for receiving the presence of metallic stoppings, it is often convenient and indispensable to form our medicine into pills, so as to fill the cavity of a tooth in this way, from which fluid medicines would immediately pass off. I gave a few forms of these. In their exhibition, the pills are to be adapted to the size of the cavity in the decaying tooth, and after introduced it should be covered with a piece of wax, so as to prevent the pill from being dissolved into the liquor of the mouth:

| | | | |
|---|---|---|---|
| R | Pulvis gallæ | ... | ʒii. |
| | Opium ... | ... | ʒss. |
| | Pulvis camphoræ | ... | ʒjss. |
| | Tinc. daturæ stramonii | | q. s. |

Reduce the substance to pills."

HOW TO PREPARE MOULDING CLAY.—From dealers in art materials can be procured clay which, if mixed with glycerine will make moulding clay. It may be mixed with water, but that dries out quickly, and requires a new mix for each use.

TREATMENT OF OLD ANTRAL DISEASE.—In intractable cases a quadrilateral opening is made in the anterior wall, consisting of mucous membrane, bone, and periosteum, the upper side not being cut through, but fractured, to act as a hinge; through this large opening a thorough inspection is made, and unhealthy tissue, etc., removed. A counter opening is made in the nose, and a portion removed from the bony flap, each being large enough to take a drainage tube, which remains in as long as there is suppuration. The flap is sewn down in place, after insertion of the tube. Mr. Roughton objects to opening into the nose, but insists on the importance of a large opening into the canine fossa and the removal of unhealthy tissue.

MUTILATING THE TEETH.—On the west coast of Africa, it is said that a large proportion of the teeth are deliberately broken when children reach a certain age. Both in the New World and in the Old, the custom exists of extracting the two front teeth of domestic servants. In Peru the custom has existed from time immemorial, and used to be a sign of slavery in the days of the Incas. This is also the custom on the Congo and among the Hottentots. Teeth are stained in various colours among the Malays. A bright red and a bright blue are not uncommon. Livingstone relates that among the Kaffirs a child with a prominent upper jaw was looked upon as a monster and immediately killed. On the Upper Nile the negroes have all their best teeth extracted in order to destroy their value in the slave-market, and to make it not worth while for the slave-traders to carry them off.

CRUSADE AGAINST SPITTING IN NEW YORK.—A movement is afoot in New York to endeavour to stop as far as possible the habit of spitting in the streets, cars, and public buildings. This anti-expectoration crusade is being conducted by the Woman's Health Protective Association. The Health

Board of New York have promised their hearty co-operation with the Association and will back up its efforts to abate the nuisance. It is stated that some of the street cars in New York are in such a disgraceful state from the prevalence of the spitting habit that they are not fit for a human being to enter. The President of the Association suggested as a remedy for this condition of things that the conductors should be supplied with tickets bearing the words: "Do not expectorate on the floor—by order of the Health Board," to be handed to passengers who are seen breaking the law. It is thought that this will give comparatively little offence to the offender and will thus prevent unpleasant scenes. The Association intends to devote most of its time to the expectoration question until it is settled either by the enforcement or repeal of the existing laws. The desire to deprive oneself of saliva is no doubt due to the use of tobacco, chiefly by chewing. The habit must exercise a harmful effect on the digestive process.

THE OPERATION OF SCALING.—Dr. Albert H. Brockway says of cleansing the teeth, that few operations are more generally beneficial or more highly appreciated by our patients. In his practice he makes it preliminary to all other operations, as it familiarizes one with the character of the mouth and the condition of the teeth, and also serves as an excellent and comparatively gentle introduction to the more severe operations which are to follow, which is important with timid or inexperienced patients. It also often awakens patients to the fact that they habitually keep their mouth in an unclean condition.

ASH'S TOOTH SHADES.—Our readers will remember that in our last issue we speculated as to whether Messrs. Ash's offer included the cost of carriage. We now find that the words "supplied free of charge" are intended to be taken literally in their widest sense, and we therefore have pleasure in withdrawing our recommendation that our subscribers should enclose cost of carriage when making application. We may, however, remind them that those who go first get served first, and there will probably be a big rush.

# Abstracts of British & Foreign Journals.

## TO REMOVE ENAMEL PREVIOUS TO CROWNING.

By H. H. Johnson.

Take a molar or bicuspid, for example, which is to be prepared for an all-gold shell crown. Where spacing will be required between the tooth to be crowned and the adjoining tooth, it can be more easily accomplished with vulcan disks, which are thin, strong, flexible and cut rapidly. Care should always be used not to cut the opposite tooth, which can easily be avoided by using pressure towards the tooth to be prepared. By the time sufficient space has been obtained these two sides, the anterior and posterior approximal, have generally been squared up very well, as these thin disks will easily pass down below the festoon of gum and remove all the enamel.

The buccal and lingual sides and the approximo-buccal and approximo-lingual corners is generally where the difficulty arises.

The buccal and lingual sides down to within a few lines of the gingival margin may be easily and rapidly cut away with small carborundum wheels, which now leaves the crown of the tooth above the neck in a square shape. The disk has flattened it on the approximal sides, and the small wheels on the buccal and lingual sides. By taking small, thin, double convex carborundum wheels these corners may be cut down until tho tooth takes a proper shape and all the enamel is removed, except a little ring around the neck of the tooth, which generally extends up just beneath the gum margin. To remove this little ring of enamel there is nothing so effectual as the vulcan cups or concavo-convex wheels. The thin edge of these little vulcan cup wheels will pass easily down below the margin of the gum without scarcely wounding it and cut off all the irregularities and excrescences. The range of work which these little wheels will do is remarkable, and they are hard and tough and do not wear easily. After cutting and levelling down the bumps, the surfaces of the crown should be planed off smooth by using scalers made very hard and sharp. For this purpose the ordinary diamond-pointed, double-edged scalers are best.

By placing the thumb on the crown of the tooth and grasping the scaler firmly in the fingers, commencing at the gumline and pulling downward towards the cutting edge, the surfaces can be effectually planed off and rendered perfectly smooth. If any enamel should have been left by the wheels it can be easily removed by the scalers in this way.

As these scalers come from the manufacturers, they are too soft for the purposes suggested above, and must be hardened. This can easily be done by heating the point to a white heat and plunging in cold water or oil. Some claim that mercury is still better. After treating them in this way you have an instrument that will cut enamel, or even glass if required.

In those cases of leaning third molars which have tipped forward on account of the loss of the molars in front, these little cup shaped vulcan wheels are indispensable for reaching the anterior surface.

*American Dental Weekly.*

## PRACTICE BY UNREGISTERED PERSONS.

Mr. Muir Mackenzie, representing the General Medical Council, applied to Mr. Sheil, the magistrate sitting in the Westminster Police Court, on March 2nd, for a summons under Section XL of the Medical Act, 1858, against William Mansell Collins, of Cadogan Place, S.W., for the false assumption of a medical title. Counsel stated that the person whose name was mentioned had for an offence had his name erased from the *Medical Register*. Notwithstanding this he continued to practice, using the titles implying that he was still a registered practitioner. The magistrate questioned whether registration was compulsory if a man possessed the qualifications. Mr. Mackenzie contended that it was, and that other wise a man is not entitled to practise. Mr. Shiel asked counsel to produce anything which said that a man who had his degrees was prevented from practising through non-registration. Mr. Muir Mackenzie cited cases and a judgment of Lord Coleridge in a particular case very like the present one. In that instance a man was struck off the *Register* for misconduct. Mr. Sheil observed that that would not make him any less M.D. if he had aver taken that degree. Mr. Muir Mackenzie replied that Lord Coleridge inferred that a man who used the title M.D. implied that he was registered. Counsel pressed for a summons, as it was most essential to have it decided at law whether a person struck off the *Register* for grave misconduct was entitled to continue practice just as though he were registered. Mr. Sheil said that he did not think that there was anything in the Act which made it obligatory for a qualified man to be registered, though there ought to be such a provision. He declined to grant the summons and must leave Mr. Mackenzie to seek his remedy elsewhere. We are glad to see this important point raised, and we presume that the next step will be to apply to the Queen's Bench for a mandamus to the magistrate to grant a summons, It is to be hoped and anticipated that the General Medical Council, having thus deliberately raised the point, will not rest until a final decision upon it has been obtained in the highest courts.

*British Medical Journal.*

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# MISAPPLICATION OF GOLD CROWN AND BRIDGE-WORK.

By Dr. W. H. THACKSTON.

The specialty known as crown and bridge work, when applied with skill and judgment, is by far the most brilliant and beneficial advance that has been made in modern dental prosthesis. With correctly made and judiciously applied crowns and bridges, and with an imperishable plastic tooth filling—stable, non-shrinkable, inexpansive, and of shades and colours matching the natural organ—the very perfection and ideal of prosthetic and operative dentistry would be realized.

But, alas! we have not yet discovered the unchangeable plastic, and the misapplication of crowns and bridges—their faulty construction and equally faulty adjustment—disappoints and disgusts our patients and creates distrust of our resources to meet their wants and fulfil our promises of utility and comfort. Not only is the foregoing statement true of much of the bridge-work which has come under our observation, but it is equally true that we now and then witness examples of gross and unpardonable violation of all hygienic and esthetic rules and requirements by the placing of gold crowns upon the diseased stumps of cuspids and incisors.

Unequalled and invaluable as is the prince of metals in both operative and prosthetic dentistry, it should never be made conspicuous in a human mouth, except under unavoidable circumstances and conditions.

It is always a sad misfortune, when we are called upon to save a valuable tooth, that we are compelled to place gold fillings where they expose and betray their presence with every word and smile.

Gold crowns should only be applied to roots and stumps of teeth out of view,—almost exclusively to the molars,—and neither crowns nor bridges should ever be applied or attached to other than perfectly sound and healthy stumps or roots. A bridge or crown fastened to teeth or roots which are in a diseased condition will always result in dissatisfaction and failure, and entail discredit and reproach upon the operator, as well as upon two of the most important and valuable advances known to prosthetic dentistry.

In brief, the safe and sure maxims for our prosthetic brotherhood are:

First. A sound and healthy condition of the hard and soft tissues of the mouth, including the gums, membranes, teeth, and roots of teeth.

Second. Porcelain crowns and facings for all anterior and exposed teeth.

Third. Perfect adaptation and artistic finish for each and every piece designed for insertion in the mouths of men and women. *Cosmos.*

## UNNATURAL-LOOKING TEETH.

Dr. Carl Kniewel, Danzig, remarks: The artificial teeth of to-day are unnatural in that they are baked to yield a glistening appearance. A diminution of this high glossness is what we should hope to attain. By dipping artificial teeth, prior to setting, into hydrofluoric acid the surfaces become more lifelike. Select the colour with reference to the complexion and age of the patient, and never permit the latter to lead you from the path of professional knowledge, rather choose teeth somewhat darker than you first conclude. The teeth always appear lighter when placed in the mouth than they do when on the wax baseplate.

## A DOCTOR ON AMALGAM FILLINGS.

Dr. Langmaid of Boston, in a paper before a Dental Society says :—

" I advise that gold filling should be substituted for amalgam where it is possible, because it has not occurred to me to see the condition of the teeth to which I refer where gold fillings have been used. Now, in saying this, I know that my observations are so limited in number and my complete ignorance of the art of dentistry is so great that I may be quite mistaken in my views and advice to my patients. But when I see in a young person superficial cavities, as well as the most profound ones, alike treated by amalgam, and especially when I find the edges of the fillings retracted from the tooth-wall, or a portion of a filling only remaining, with signs of irritation of the gums and particles of food lodged around these depressed and retracted fillings, I cannot but think that a different dentistry is needed and that the septic condition of these teeth may cause a prolonged or recurring irritation, whatever treatment I may think might be useful in different conditions.

It has seemed to me that in many cases amalgam fillings were more often used than was necessary, and that sometimes the desirable amount of skill and labour had not been employed. I am especially unsatisfied with the unstinted use of amalgam in the case of a young lady, handsome it may be, with regular white teeth which, were their crowns not black with amalgam fillings, might be of cosmetic service provided she was an actress or a singer, as indeed she intends to be.

I have not as yet touched upon the effect of the amalgam itself as a cause of irritation of the mouth or neighbouring parts.

Now, in order to make any observations upon the cause of a disease or diseased condition, it is necessary to be definite with regard to the nature of the affliction. Suppose amalgam *per se* was the cause of disease of the mouth and neighbouring parts, what condition of the mucous membrane would result? A disease well known to general practitioners as well as to the specialist,—viz., a stomatitis or inflammation of the membrane, with or without ulceration. Such a condition, as I have said above, is not uncommon in patients who are trying some mercurial preparation for the cure of syphilis, but I cannot say that I have ever been able to ascribe such a stomatitis to the constitution of the amalgam filling. When teeth are in the condition described above I have seen aphthous spots where the tooth came in contact with the cheek, but I have not considered these ulcerations as due to anything but to the mechanical attrition of the mucous membrane by a ragged tooth.

I have spoken of these cases in which I thought it possible that the large use of amalgam might have caused irritation because of the nature of the amalgam. Two of the patients seemed to improve when the teeth had all been treated by other than amalgam fillings. The condition of the mouth and throat had best be described. An unnatural redness pervaded the mucous membrane of the tongue, but also unnatural smoothness. There was no ulcerations, and the mouth was dry rather than moist. It was evident that the smooth appearance of the tongue was due to a loss of the papillæ. The pharynx was what has been described as follicular.

In these cases there was a serious impairment of the general health, with tormenting dyspepsia. As I have said, two of them were really improved after the fillings had been removed and others substituted. The third case disappeared and should not be considered.

This is a beggarly show of cases, but they are the only ones which I have been able to summon to prove the noxious effects of amalgam *per se*, and I find no fault with those who think they prove nothing. I have repeatedly seen similar appearances in mouths where there were no amalgam fillings, but associated always with dyspepsia. I must say that I have had my suspicion aroused frequently when this condition existed in mouths which were adorned with rubber plates. But that is another story. It is worthy of remark that the cases which I have referred to the dentist have all been women.

I have had the curiosity to look at some of the dental literature bearing on the subject. Not in the least in an exhaustive way, for the dental aspects are only to be understood by the practical dental surgeon, and I am aware that I am addressing an American dental society. I did, however, think that I might appropriate as germane to my part of the subject such a remark as this : "The odium attached to amalgam is largely due to its abuse and misuse by those of the profession who should know better." This was not written with the view of showing its deleterious effects anywhere except upon the teeth.

So far as my observation goes, then, I have negative evidence to show for the effects of amalgam *per se* upon the mucous membrane of the mouth and throat. It is my contention that bad dentistry may be the cause of irritation which may invade neighbouring regions. In making such observations, preconceived theories, undescribed conditions, unphysiological and unscientific statements should be avoided.

I find this statement also in dental literature: "It (amalgam) has established for itself a deservedly unenviable reputation which, even in this enlightened day, has not been entirely eradicated, notwithstanding that it has proven its great intrinsic value and probably saved more teeth than any other one material." Of the value of these statements I must allow you to be judges. Should you accept them as true, no chimerical theories as to its harmfulness should be allowed to deter you from the skilful use of such a preservative agent.

*Cosmos.*

# CATAPHORESIS.

By Dr. L. E. Custer, Dayton.

Within the past year the practicability of cataphoresis has been rather fully tested, and, while there may not be the enthusiasm that was shown a year ago, it would seem that this method of obtunding hypersensitive dentine has about reached the level that it will maintain. Owing to the care, the time, and the knowledge required for making the operation a success, it will not be used in every case that presents; nor should it be.

The danger to the pulp is a matter not to be overlooked, and this should be the controlling factor in the selection of cases. It seems that if the process is carried far enough to obtund the pulp to any great extent, trouble will follow. It is almost impossible to obtund the dentine in the walls of a deep cavity, for the reason that the current, finding a better conductor in the thin layer of half-calcified dentine at the bottom of the cavity, nearly all of it flows directly into the pulp through the bottom of the cavity.

The walls of a deep cavity are not usually obtunded by the current, except in a reflex manner by first obtunding the pulp through the thin layer of dentine at the bottom of the cavity. Herein lies the danger. The pulp is already trembling between life and death by the nearness to exposure, and this condition is not helped by the current of electricity which is very likely to be used in such cases, to the extent that electrolysis of the pulp is produced. In cavities where the pulp is somewhat distant, it is entirely feasible to use the current for obtunding the dentine without endangering the pulp. No one should perform the operation without using a milliameter, not any more for measuring the current flowing through the tooth than for the purpose of detecting whether the current may be leaking around the tooth and producing destructive electrolysis of the gum-tissue.

*Dental Register.*

## BORACIC ACID.

In view of the extent to which Boracic Acid is used in preserving articles of food, the following communication by Mr. George Foy to *The Medical Press* is of interest:—

According to Stillé, the long-continued use of borax produces an impetiginous eruption of the skin. Hodadewks reports (*Lancet*, May 6th, 1882) two cases in which a 5 per cent. solution of boracic acid, used for washing out the pleural cavity, occasioned an erythematous rash over the face, trunk, and extremities.

Bruzeline (*Hygiea*, Stockholm, 1882) saw a widespread rash (erythematous) make its appearance after a few days' use of forty ounces of a 4 per cent. solution taken as an injection in chronic diarrhœa. The eruption was confluent about the neck, and well developed over the body.

Gowers reports three cases in which borax administered for a long period to epileptics determined an eruption perfectly characteristic of psoriasis. In two of the cases the addition of a small quantity of arsenic to the borax caused the rapid disappearance of the eruption. Dr. P. C. Fox states that Liveing confirms the observation of Gowers. Johnston reports a case in which the injection of 3·6 grammes of boracic acid was followed by headache, fever, injection of conjunctivæ, and the appearance of an eruption consisting of a bright erythematous redness, papules and bullæ.

On the other hand Rhiswanger took 290 grains of boracic acid within three hours and the only effect produced was vomiting and purging. A pupil of Forster's (*Arch. f. Hyg.*, 1883), took daily with his food 46, and this was followed by disturbed digestion.

Féré found unpleasant results from the use of borax in the treatment of epilepsy. (*Sem. Med.*, 1894).

Gould writes :—In France, C. Féré, *Sem. Med.*, 1894), early attention was called to the digestive trouble, and to the eczema induced by it. The intestinal toxic effects were the most frequent and earliest. Occasionally absolute intolerance exists, nausea and vomiting occurring after the first dose. More often, after a few doses, there are loss of appetite, sensations of weight and heat at epigastrium, with ensuing nausea, pains in the temple, and vomiting. Borax causes a peculiar dryness of the skin and mucous membranes. The lips and tongue are denuded of epithelium. The lips and angles of the mouth are fissured, and the conjunctivæ injected. The dryness of the skin, even without an eruption, often coincides with a dryness of the hair, which falls out. Sometimes even the beard, eyebrows, axillæ, and pubes are stripped. Cachexia, emaciation, œdema of the face and extremities are often present.

Féré reports one fatal case in which the kidney was found to be diseased. Dr. Lemoine (*Gaz. Med.*, Paris, 1890) reports four cases of poisoning by surgical dressings of the acid. He explains them by the fact that the patients all had kidney trouble, which allowed the drug to accumulate. Dr. Welch, (*Med. Rec.*, 1888) found toxic symptoms from the use of boracic acid on a vaginal tampon. Rose reports a fatal case of poisoning following the external use of the powder (*Med. News.*, Phil. 1883), and Hoyner (*Eira*, 1888) reports three fatal cases from washing out the stomach with a 5 per cent. solution of the acid. In the same year Spencer reported in the N. W. *Lancet* cases of poison with recovery, and L. Brose (*Phil. Med. News*, 1883) reports a case of death following the external use of the powdered acid.

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To keep solder in place, add a little gum arabic to the flux, and rub with the borax and water on the slate.

# PREPARING PATIENTS FOR ANÆSTHETICS.

By Dr. F. Hewitt.

There can, I think, be no doubt that an abstinence of at least four hours should be enforced, and if it be somewhat longer so much the better. Clear soup or beef-tea without any solids is on the whole the best form of nourishment before an operation. Milk and eggs should be avoided. In private practice an endeavour should be made to interfere as little as possible with the patient's usual hours for meals. Thus, for early morning operations (up to 10 a.m.) he should have a light dinner the night before at his usual time and nothing whatever after. In the case of an operation about 2 p.m. he should have a light breakfast at his usual time and nothing after. The practice of giving a patient beef-tea at 6 a.m. before a 9 o'clock operation is open to objection, and the same remark applies to beef-tea or soup at 11 a.m. before a 2 o'clock operation. The stomach should not only be empty when an anæsthetic is given but digestion should have finished for some little time.

The next statistics are interesting, for they show the very decided influence which the length of administration has in determining gastric after-effects :—

*Average Duration of Administration.*

| | |
|---|---|
| Class 1 ... ... | 30 min. 3 sec. |
| Class 2 ... ... | 34 min. 52 sec. |
| Class 3 ... ... | 41 min. 39 sec. |
| Class 4 ... ... | 41 min. 51 sec. |

The lesson to be learnt from these figures is that patients should not be kept longer under anæsthetics than is necessary, for it is clear that, other things being equal, the longer a patient inhales an anæsthetic, the greater will be the chances of after-effects.

I may here say something as to the prevention and other treatment of the above sequelæ of anæsthesia. I have already alluded to the regulation of the diet. In addition to this it is essential that the bowels should be thoroughly evacuated. This is best done by administering a purgative the night but one before the operation and an enema on the morning itself. As regards the administration the patient should be rendered deeply insensible as quickly as is compatible with safety ; a deep anæsthesia, free from swallowing movements, should be maintained; the head should be kept upon the side for the escape of mucus and saliva and the mouth should be frequently wiped out. If it be necessary to move the patient from the operating table to the bed, this should, if possible, be done during deep anæsthesia. When in bed he should be turned well upon his side, the bed should not be moved, and the room should be kept quiet. Putting exceptional cases on one side, no nourishment whatever should be given until the patient himself asks for it. If nausea, retching, or vomiting be present the first thing to do is to give at frequent intervals two or three ounces of very hot water to drink. The taste of ether is best overcome by moistening the lips with lemon juice. If there appears to be a neurotic element present, enemata of twenty grains of bromide of potassium in two ounces of water will often answer well. I have found the inhalation of vinegar from a towel very useful in arresting vomiting and I may say the same of the application of a mustard leaf to the epigastrium. By one or other of these plans you will find that you will be able to successfully treat the unpleasant after-effects of anæsthesia.

*Lancet.*

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## THE HEAT OF THE INCANDESCENT ELECTRIC LAMP.

The incandescent electric lamp is essentially a device which transforms electricity partly into light but mostly into heat. As is well known the carbon filament of the lamp is a substance offering great resistance to the passage of the current and the product of this resistance is light and heat. It is an instance of the translation of one form of energy into another. It may not, however, generally be known that the light produced is but after all only a small percentage of the energy thus manifested—some 5 or 6 per cent. at the most. This fact is very important, bearing in mind a very common notion that the electric incandescent lamp is free from the heat rays. It is true that the lamp when working is not comparable with a flame or naked light, but at the same time the heat evolved is such as may lead to ignition. We are disposed to emphasise this point because the incandescent electric lamp is used for the purposes of illumination and decoration in shops without any regard to the possibility, nay, probability, of fancy goods being fired which happen to be contiguous. Indeed, so firm is the idea that the incandescent electric lamp is free from heat that it is frequently to be found buried in a mass of easily ignited and highly inflammable material. This is a mistake and care should be exercised with the electric lamp in its application in this connexion, but the risk, of course, is not so great as where naked lights are employed. We have found by experiment that on immersing a 16-candle power lamp (100 volts pressure) in half a pint of water the water boils within an hour and in proportionately less time when a 32-candle power lamp is substituted. If again the lamp be buried in cotton-wool the wool soon begins to scorch and ultimately to burst into flame. In one experiment which we tried the bursting into flame of the wool was accompanied by a loud report, due to the *im*plosion of the lamp. It clearly appears from this that the incandescent electric lamp cannot be regarded as an unlikely means of starting a serious fire, and shopkeepers, especially those who exhibit highly inflammable fabrics, should know that there is risk in placing such goods too close to the lamp. The lamp in contact with celluloid fires it in less than five minutes and therefore the danger is particularly obvious in the case of toy-shops where electric incandescent lamps are often suspended in the midst of toy celluloid balls. *Lancet.*

## USEFUL HINTS.

Apply powdered or lump resin to the driving belt of the engine, to prevent it slipping.

To make sticky wax for holding clasps in place, use resin two parts, beeswax one.

To finish rubber plates, use about one-third emery with pumice. Saves labour and time.

A pellet of cotton placed on a small bur, dipped in pumice, will be found effective in polishing gold fillings.

Often black rubber plates have a brownish tint when vulcanized. To give them a jet black colour, immerse the plate for a few moments in bisulphide of carbon; then place in water to remove the odour.

# Reports of Societies.

## ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, March 7, 1898. Mr. W. E. Harding, President, in the chair.

The Secretary read the Minutes of the last meeting, which were confirmed.

Messrs. Breward Neale and G. N. Willis signed the Obligation Book, and were admitted members of the Society.

The following gentleman was proposed as a resident member of the Society—F. J. Van-der-Pant, L.D.S.Eng., 46, Seymour Street, Portman Square, W.

The following gentlemen were elected members of the Society. As resident members:—Frank Harsant, L.D.S. Eng., Fair View, Muswell Hill, N.; William Barnabas Woodhouse, L.R.C.P.Lond., M.R.C.S., L.D.S.Eng., 1, Hanover Square, W. As a non-resident member:—Kevin E. O'Duffy, L.D.S.Edin., 85, Harcourt Street, Dublin.

The Librarian (Mr. W. A. Maggs) reported the receipt of the usual Journals and Periodicals.

### Casual Communications.

The Hon. Secretary read for Mr. George Brunton the following communication on "The Strip Matrix."

"A matrix to facilitate the building of gold fillings in interstitial cavities in anterior teeth has been used for many years. It consists of a piece of thin metal, tin, copper, or German silver, about a ¼ in. wide and 2½ ins. long; this is interlaced between the teeth in such a way that it will retain its place and give a good wall to build a filling against. The advantages of using a matrix are, a more thoroughly condensed filling, a simplified cavity to work on, and a 'saving of time.' The straight strip matrix has this disadvantage, however well it may fit at the gingival margin, it saggs at the cutting edges and has to be pinched together to bring it close. This is overcome by giving the strip a definite curve. If we take a piece of silk or fine wire and pass it between the teeth close up to the gingival margin, say from canine to canine in the maxilla, and cut off the free ends, then remove it, take another piece and pass it in the same manner, keeping near the cutting edges, and then lay the two pieces together, we shall find that piece which was near the cutting edge is shorter by about ⅝ of an inch. Working this out we find that an outer circle of 2¼ ins. diameter and an inner circle of 1¾ ins. gives the proper curves to allow the strip to lie close to the teeth, both at the cervical margins and the cutting edges. For convenience of adjustment the strip is reduced in width at each end on the inner side of the circle. Before adjusting the matrix the rubber dam is put on. Should there be a space between the teeth at the gingival margin and the matrix does not go close, a wedge of wood may be used. It must be fitted to fill the space and cut off close up to the teeth; then when the matrix has been passed alongside the cavity, the wedge is inserted from the lingual side and the matrix folded over so as to retain the wedge in place, while the wedge drives the matrix close up to the cervical margin.

"The metal I find most suitable is platinoid; it is just an alloy of German silver with the addition of about 2 per cent. of Tungsten, and is made by Mr. Martino, of Sheffield.

"The strip matrix is one of those little accessories which makes gold filling both easy and pleasant."

The PRESIDENT said that Mr. Brunton had shown him the matrix a short time ago, and it appeared to him that the aim was principally to cut a matrix to fit the teeth to a definite scale. Mr. Brunton's investigation had shown that by cutting a matrix which was a segment of a circle of a given size, the matrix would fit the majority of contours of mouths.

Mr. BALDWIN thought the originator of the idea of a curved matrix was Mr. Lennox.

Mr. GEORGE NORTHCROFT said he had found, by using the Lennox matrix on front teeth, with a little adaptation it answered all purposes. He had been using this method for over a year, and it certainly seemed to him that Mr. Brunton's matrix was only a repetition of an idea which had already been heard of.

Mr. F. W. RICHARDS read the following notes on a case of composite odontome.

He said: "The communication which I am bringing before the Society this evening is an odontome which was removed from the mandible of a young woman, aged 23. When the patient first came under my notice there was a large swelling in the region of the left second and third mandibular molar teeth; these teeth were absent and there was no history of their removal. The surrounding gums were very much swollen and suppuration had commenced.

The patient complained of considerable pain, and stated that she first noticed the swelling about three months previously, and that it had been gradually increasing in size. Upon examination with the probe a hard growth was felt, which a few days later was removed by Mr. Marsh, the odontome being exposed and easily levered out of its position by the bone chisel, the encasing bone being first removed. The patient made a quick recovery and the jaw settled down into a normal condition.

"The odontome was formed of a mass of dental tissues, enamel, dentine and cementum, mixed together, which should have been, if normal conditions had obtained, the left mandibular second and third molars, or the second molar only. The growth measured from before back one inch, from above downwards $\frac{11}{16}$, and from side to side $\frac{11}{16}$."

Mr. J. F. Colyer showed some cases illustrating the diagnostic value of the X-rays. In two cases the patients presented retarded dentitions. In the one patient, whose age was 15, the only permanent teeth present were the first molars, the greatest number of the deciduous teeth being present and firm. The patient had been under observation for nearly four years, and no apparent change had taken place in the condition of the teeth and gums. The skiagraphs showed the permanent teeth to be present in the parts of the mouth examined. In the second patient the only teeth present in the mandible were the canines and first molars, and in the maxilla the central incisors, canines and first molars. The skiagraphs showed in the mandible a first bicuspid, and the maxilla also a bicuspid in the parts of the mouth examined. Three other examples were taken to obtain the condition of unerupted teeth in the front part of the maxilla. He also showed two cases illustrating the value of the X-rays in the treatment of irregularities. One specimen showed that a supernumerary was the cause of separated central incisors, and the second specimen the presence of a second lower bicuspid unerupted. In this case the first bicuspid only was present, and there was insufficient room for the second to erupt.

Mr. J. C. Storey also exhibited lantern slides illustrating the following case. In November of last year he was consulted about a girl, aged 9. The patient had had a persistent eft maxillary incisor root which had been extracted six onths previously, and the present trouble was the eruption the permanent tooth on the labial surface of the alveolus, nearly half an inch from the gum margin. During the succeeding ten weeks the only observable difference was the clearing away of the gum, so that the coronal edge was distinctly seen. He had taken skiagraphs by means of the X-rays, with a view of determining the direction of the root, as he felt if it were a case of dilaceration there was, of course, no possibility of turning the tooth. He showed a negative of the case, two negatives of the films (two-minute exposures) and two prints of the negatives. The films were wrapped in gutta-percha tissue, and held in position with the fingers while the photographs were being taken. The skiagraphs showed strong evidence of dilaceration.

Mr. D. P. GABELL suggested that it would be a great improvement in skiagraphs if stereoscopic views were taken, so as to obtain a better idea of the position of the teeth. He had had some taken that afternoon with thirty seconds exposure. Those taken through the head, from side to side, were four minutes. They had obtained two views from two positions, 40 mm. apart, by moving the tube only, between the exposures. Those views were then put in a stereoscope and a picture was obtained giving a much better idea of the position and shape of the buried teeth.

Mr. STORER BENNETT said there was only one point he should like to suggest with regard to the photographs which had been shown, and that was a practical one which would apply to all other lantern slides of models which might be taken in the future. If before taking a photograph of a plaster of Paris model, especially a new one, which afforded very little contrast indeed, the gum and palates were painted either with a mere dirt pigment or with a colour somewhat resembling the gum, the contrast between the teeth, the gums and the palate, would be shown very much better. A mere white surface of the gums and teeth afforded very little contrast, more especially if the model were in a perfectly clean condition—the older the model the better for photographic purposes.

Papers were read by Messrs. J. F. COLYER and C. J. BOYD-WALLIS, which will be found at the commencement of this number of the JOURNAL.

## DISCUSSION.

Mr. ELLWOOD asked if there were not some confusion in the nomenclature of Mr. Boyd Wallis's paper. Formic-tannic-catgut was a term used in the paper, and it was a little confusing. The paper seemed to be one on formalin, and he should surmise that probably the catgut had formalin as a constituent, but formic acid was another chemical altogether.

Mr. **Coffin** asked Mr. Colyer to kindly say a little more minutely how he used the metallic cap in combination with the formalin.

Mr. **Breward Neale** asked the number of cases in which formalin had been used.

Mr. **Howard Mummery** said he had looked up his book to see in how many cases he had used formagen, and found the number was seventy-one, and out of those he had had four what might be called failures, one in which there had been considerable pain and in the other three discomfort. In the three cases he had to remove it, but he had renewed it in one case, and it had acted successfully. He thought his first failures were due chiefly to not having used a piece of metal for the cap. Parchment or paper he found was not a sufficient protection against pressure.

Mr. **Robbins** emphasized one point mentioned by Mr. Boyd Wallis. He had not used formagen in his practice, but in January of last year, after his little boy had suffered from scarlet fever, when the local authorities were doing the fumigating in a very slipshod sort of way, he undertook to do it himself, and used a 40 per cent. solution of formadehyde mixed with a certain proportion of water and evaporated it over a Bunsen burner in every room, closing all chinks. In a few days he had severe conjunctivitis, and had to be kept in the dark for two or three days. Later on a peculiar form of chemosis showed itself, and a little later still he had to have one eye operated on for a kind of cyst, traced, the ophthalmic surgeon thought, to the irritation caused by the formaldehyde.

Mr. **F. J. Bennett** asked Mr. Mummery whether he had any selective plan according to the state of the disorganisation of the pulp—whether it was with or without periostitis, or used invariably in all cases of exposure of the pulp. If that information were given, members would get to know better the limits to the application of the new drug. With regard to Mr. Boyd Wallis's remarks as to the disinfection of clothes, he (Mr. Bennett) would warn members it was a mistake to think that formalin did no harm to clothes. Formalin undoubtedly acted on the colouring matter of clothing, and turned them into a very disagreeable brown colour.

Mr. **Northcroft** did not quite understand from Mr.

Colyer's paper whether he used the metal cap in all cases, or whether it was simply a pulp cap where there was a slight exposure. If that were the case he should like to know what Mr. Colyer's theory was in regard to the formaldehyde getting to the pulp. Was the pulp protected by the cap from the drug, or was the cap filled with the preparation?

Mr. J. F. Colyer said most people had been in the habit of putting formagen straight on to the pulp, and then putting the filling on the top. His plan was to put the formagen on in the ordinary way and then put a little cap over the formagen; the formagen, of course, coming next to the pulp in the ordinary way.

Mr. Coffin said with regard to formaldehyde generally, it was certainly a very remarkable chemical substance. Its prompt and rapid combination with such evil-smelling compounds as mercaptan, skatol, sulphuretted hydrogen, and various ammoniacal stinks was very wonderful, forming inodorous compounds very rapidly, and in that way it was evident it would have very extensive uses. It was not quite as harmless as some people supposed. It might be within the memory of some that a number of infants were nearly fatally poisoned with milk preserved with a very minute portion of formalin. Some eye solutions, such as eserine and atropine, were said to be kept sterilised by about one 100th per cent. of formalin, but any too large proportion would be serious, one might imagine, used in that way. There was a thing about formalin rather interesting, which he had not seen mentioned in the English pharmaceutical or dental journals. If anyone remembered the peculiar pungent odour of hamamelis extract, hazeline, or Pond's extract, and compared it with a dilute solution of formalin, the similarity was so great that it had led to the strong assertion (particularly in America) that one of the above constituents of the former was formaldehyde. He, however, did not think that was the case. There was so much mystery surrounding the active principles of hazeline, which many authorities declared at one time had no action whatever, even as a hæmostatic; the subject was one of interest, and had not been quite cleared up. With regard to formagen, he had not used it much, from a disinclination to using a material the nature of which he was not acquainted with, but he had tried to use formalin in several ways. In the first place there was what was called "formalith" in the market, which was a natural earth saturated with a 40 per cent. solution, and mixed with eugenol, or any similar liquid, to a favourable substance had given very good results, except that he had got pain in a large number of instances, due probably to an excess of formaldehyde. It was also well known that the action of formalin on gelatin was so extraordinary that the hard substance resulting could be reduced to a very fine powder called "glutol," and sold for dermatological purposes. Used dry or in a paste, he was satisfied that it liberated formaldehyde, as it was supposed to do, and certainly was very successful in the treatment of sores and wounds. He had also tried paraformaldehyde, a powder that gave very few of the reactions of formaldehyde, but gradually reverted to it. He had had fairly good results from the various ways in which he had tried to use formaldehyde in teeth. He had not selected his cases in any way. He thought there was a great future for its use when the best method was found. Mr. Colyer's paper showed that however formaldehyde was contained or liberated by formagen, very much might depend upon the freshness of the material used.

Mr. Morgan Hughes asked Mr. Colyer if he were in the habit of using formagen for root treatment in the case of septic roots; also whether he had used formalin itself, and if so in what strength he was in the habit of using it. It seemed to him that according to the analysis quoted by Mr. Colyer formagen and formalin were two entirely different things, as the former was proved to contain practically no formaldehyde.

Mr. Storer Bennett thought that in fairness to a preparation that seemed likely to be of value to dentists, members ought to bear in mind the instructions which appeared on the boxes of formagen. It was there stated that when the powder and the liquid were mixed together formalin was slowly evolved. He supposed it was intended to be understood that when they were mixed and used in the teeth at about 37° C. the substance would slowly be generated. That might be one explanation of why the analysis failed to show any trace of formaldehyde, either in the fluid or in the powder. He should like to warn all members, as he did some months ago when the subject was first brought up, of the danger of using formaldehyde in the treatment of sensitive cavities. He was very much surprised to hear Mr. Boyd Wallis say in his paper that he had used it with advantage in sensitive cavities, because formaldehyde itself was of an exceedingly irritating nature. If it even got on the fingers the skin was irritated by it, but about the mucous membrane of the mouth it was excessively irritating. In anything so strong as a 4 per cent. solution even it burned the gum considerably. With regard to formagen, in which the formaldehyde was only said to be evolved slowly, there was no pain produced unless it was as the result of pressure. He thought a little slur had been cast on the substance because it was what was called a secret preparation, and many practitioners objected to dealing with any preparation the constituents of which they did not know; but he would ask them whether they were able to state what were the constituents of the osteoplastics in common use. Nearly every osteoplastic put on the market was claimed to be a perfect filling, and was said to contain new substances, and yet as a matter of fact it turned out nearly always to be very much the same as those in use before. He believed there were few, if any, of the members who knew absolutely what were the constituents of most of the osteoplastics which they were called upon to use. Although formagen was a secret preparation, if it were valuable it ought to be used. He himself did not like quack remedies; but at the same time it was only fair to state that all the osteoplastics were practically quack preparations in the sense that their constituents were secret.

Mr. Dolamore said he had not used formagen, but recently had been reading an interesting paper by Dr. Bönnecken, of Prague, who had been experimenting with formaldehyde for the last two years. He had worked on very rational lines. Knowing the action of this drug on tissues, he reasoned this action would produce on teeth a certain result. For instance, it was a pure coagulant, therefore he applied formaldehyde to a cavity to coagulate the dentinal fibres, and so act as an anodyne. Mr. Boyd Wallis mentioned that he had used it with this object. The result was as anticipated, but Dr. Bönnecken gives a caution against the use of the drug for this purpose, namely, that after a time there is great risk of destroying the pulp. He used a 5 per cent. solution in cavities which were by no means deep, and in a couple of instances, at any rate, he destroyed the pulp entirely. Mr. Dolamore thought, therefore, that possibly they might ascribe the good effect of formagen to the presence of only very small quantities of formaldehyde, because, as he understood it, they were to use formagen for cases in which the pulp was exposed with the expectation of saving the pulp in a live condition, and not destroying it. It followed that the amount of formaldehyde present must be small. In Germany they were now largely using cements prepared by adding a little formaldehyde to an ordinary cement, using them instead of, and in the same way as formagen. So far as he had read, the results obtained were equally good.

Mr. J. F. Colyer, in reply, said he quite agreed with Mr. Storer Bennett that they were in the habit of using secret remedies, but it was not a professional thing to do, and because they had done so in the past there was no earthly reason why they should do so in the future.

In the instruction issued with formagen it was distinctly said that the formaldehyde was very slowly evolved, and the experiments of Mr. Kunert, to which he had referred, seemed to support this statement. But as he, Mr. Colyer, had pointed out, eugenol would give exactly the same results with the silver test, so that the result Mr. Kunert obtained might have been from the eugenol and not from the formaldehyde. He asked Mr. Lucas and Mr. Richards if in the preparation he gave them there was anything that produced formaldehyde, and both said they did not think there was. It was a very curious thing that in the two old preparations he had spoken of there was not the slightest trace of formaldehyde, but there was the slightest in the absolutely new one, and it therefore appeared that what little formaldehyde was present at first rapidly disappeared. With regard to the number of cases he could not speak positively, but he should say they were nearer a hundred than seventy-five. He had used it in nearly every class of case of exposed and septic pulp, and had found it especially useful in the treatment of pulps for gouty people and children.

The President having thanked the readers of the papers, and those who had taken part in the discussion, adjourned the meeting until April 4.

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## THE ODONTO-CHIRURGICAL SOCIETY OF SCOTLAND.

The annual meeting of the Odonto-Chirurgical Society of Scotland was held in the Dental Hospital, Chambers Street, Edinburgh, on March 18th. Mr. John S. Amoore, president, in the chair.

At the conclusion of the formal business, Dr. Williamson, of Aberdeen, explained an interesting case of the non-eruption of the permanent teeth, in which it was endeavoured to prove the existence of the teeth, embedded in the body of the jaw, by means of the Rontgen rays.

Dr. William Guy gave an account of the method he had adopted of administering gas combined with ether at the Royal Infirmary, detailed some statistical results obtained from it, and gave particulars as to the way in which several of the patients received the anæsthetic.

The meeting afterwards adjourned to one of the lecturing theatres at the College of Surgeons, where Dr. Dawson Turner gave on account of some of the recent advances in the application of the Rontgen rays, and illustrated his remarks by several Rontgen photographs thrown upon the screen. He also explained a plan he had devised for marking the distance from the surface in which a foreign substance might happen to be embedded in the body, and showed some photographs which he had taken of the teeth.

The annual dinner of the Society was held in the Balmoral Hotel in the evening. Mr. William Guy, F.R.C.S., L.D.S., was chairman ; Mr. W. Graham Campbell, M.B.C.M., L.D.S., and Dr. Turnbull, co-secretary, acted as croupiers ; and the company included Dr. Craig, Mr. W. Bowman MacLeod, Mr. Thomas Wallace, Mr. S. Durward, Mr. Walter Campbell (Dundee), Mr. D. Hepburn, Mr. M. Macgregor, Mr. Rees Price, Dr. Matheson Cullen, Mr. J. S. Amoore, Dr. Johnston, Mr. Rutherford Hill, Dr. Farquharson, Dr. Proudfoot, Dr. Jamieson, Dr. Dawson Turner, and Mr. H. B. Ezard.

In proposing "The Dental Diploma," the chairman referred to the recent decision of the Courts as to the restrictive claims of the Dental Act, and said that the reasons for that decision appeared to him so rare that in his mental grasp he could only find a parallel for them in the difficulty of the railway official who on a certain occasion had declared that "dogs was dogs and cats was dogs, but the tortoise was an insect." Referring to the question as to whether they should have a dental representative on the Medical Council, it was his opinion that if they were to have a representative they should base their claim on something higher than opportunity or expediency—they should base their claim on strict justice. (Applause).

"The Odonto-Chirurgical and Sister Societies" was proposed by Dr. Matheson Cullen, who spoke of the presen state and immediate future of dentistry. If dentistry, he said, was to take its rank as part of medicine, it would not do so effectually until the dental student was compelled to take a diploma in medicine, and thereafter be allowed to pursue the further study in his speciality of dental surgery. That was what had already taken place in the speciality of public health. The Societies did a great deal of good in their own special way. They made known and disseminated the latest teachings and improvements with regard to dentures, bridges, and crowns, and all that varied mystery of mechanical dentistry for which he had the greatest admiration, because he had the most profound ignorance; but at the same time the doctors knew very well the vast amount of good that was conferred upon their patients by such mechanical contrivances. Proceeding, he emphasized the importance of prophylaxis. It was the root idea of medicine, and should be so of dentistry. A dentist should not merely be a mechanician, but he should take advantage of his medical education in order to be able to prevent the decay of teeth. It was a very important thing to be able to provide artificial teeth, but it was much more important to be able to conserve the natural ones. (Applause.)

Mr. Amoore, the president of the Society, replied, and also proposed "The Licensing Bodies." Other toasts followed.

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## SOCIETY OF ANÆSTHETISTS.

At a recent meeting, Mr. Alfred Coleman detailed his Method of Giving Nitrous Oxide Gas through the nose so as to allow more prolonged operations on the teeth to be performed than was possible when the ordinary methods in vogue were employed. His apparatus consisted of a nose-piece made to loosely cover the nose, fitting accurately at its base and connected with a flat tube also adapted to fit accurately at its base and connected with a flat tube also adapted to fit accurately over the forehead. To the latter is attached a piece of stout rubber tubing having at its further extremity a very lightly constructed two-way stopcock, which is connected with the ordinary gas-bag, a valve being placed between the two. The gas-bag is connected by a long tube with the gas-bottle. Over this nose-piece as well as over the mouth is placed an ordinary although somewhat large face-piece capable of covering alike the mouth and the nose-piece placed *in situ*. When the patient is fully narcotised this face-piece is removed and the anæsthesia maintained by the gas being allowed to traverse the nose. In fifteen cases the average period of anæsthesia was about two minutes, in one case five minutes, thirteen teeth being extracted. The same principle has been adopted by Mr. Coleman to the giving of ether, nitrous oxide, and air, and a similar plan was suggested for giving chloroform dosimetrically.

Mr. Harvey Hilliard contributed a paper on the Prolongation of Nitrous Oxide Anæsthesia in Dental Practice. His plan is to give nitrous oxide gas in the ordinary manner, and when consciousness is lost the face-piece is removed at the commencement of an expiration and a soft gum elastic silk tube of the size of a No. 7 catheter and six inches long is then passed into the nose. Its distal end is like an *a boule* male catheter and is solid up to the orifice which is half an inch from the point. The proximal end is expanded to receive the conical attachment of tubing in connection with the gas cylinders. By a simple arrangement the foot controls the supply of gas to the ordinary face-piece as well as to the nasal tube. As soon as the nasal tube is passed, although the face-piece is again placed over the patient's face, yet the stream of gas is deviated from it to the nose-tube, and so completes narcosis and maintains it as long as is required after the face-piece is finally removed and the operation is in progress.

Mr. S. A. T. Coxon (Wisbech) described a further and different method of prolonging Nitrous Oxide Anæsthesia during operations upon the mouth. His plan was to employ a metal tube which is held in the mouth after the ordinary method of producing narcosis had effected anæsthesia. To obviate the cooling of the mouth which experience had shown to occur when gas was thus pumped into the buccal cavity Mr. Coxon had adopted the use of a metal coil, through which the gas passes and which is placed in water of the required temperature.

The President, while congratulating the writers of the three papers, said his experience of the use of a nasal catheter in connection with the prolongation of anæsthesia in operations on the mouth was not in its favour, as in so very many cases stenosis or complete blocking of one or both nostrils occurred, and it was often difficult to pass the catheter at all or to avoid hæmorrhage in the attempt. He had employed Mr. Coleman's method with conspicuous success, having easily obtained an anæsthesia of four and a half minutes, during which time fourteen teeth were removed. He entered a caution against the prolonged anæsthesia being used as a means of introducing multiple extractions of teeth as experience had shown that such operations were open to grave objections.

Mr. Paterson said that his trial of Mr. Coleman's apparatus led him to approve the principle, although he believed the actual apparatus could be improved. The catheter method was not, he contended, free from disadvantages—for example, the obvious difficulty of its rapid introduction and the impossibility of properly sterilising it after or during use.

## Dental News.

### DEATH FROM SWALLOWING FALSE TEETH.

At Liverpool the coroner held, on the 4th inst., an inquest on the body of W. H. Fetters, who died under singular circumstances. The deceased had had four teeth extracted and four false ones substituted on a vulcanite plate. He was brought to the Southern Hospital, Liverpool, where the plate was found lodged in the gullet. An unsuccessful attempt was made to move it, and an operation was successfully performed, but blood poisoning resulted in death.

### NORTH SURREY DISTRICT SCHOOL.

Report of cases treated in the Dental Department of the North Surrey District School, Anerley, during the year ending April 4, 1898.

| | | |
|---|---|---|
| Extractions | Temporary teeth ... | 454 |
| | Permanent ... | 68 |
| | Under Anæsthetics ... | 24 |
| Filling Plastic ... ... ... | | 72 |
| Removal of Salivary Calculus ... ... | | 32 |
| Regulation cases ... ... ... | | 17 |
| Miscellaneous cases, including dressings, the treatment of alveolar abscess, etc. .. | | 44 |
| | Total | 711 |

Henry J. Moxon, B.A., L.D.S., Dentist.

# THE EFFECT OF TRASHY LITERATURE.

Before the Croydon borough magistrates, the Mayor presiding, Ernest Ross, 17, describing himself as a dentist, of George Street, Upper Norwood, was charged with being a suspected person found on enclosed premises with housebreaking implements in his possession, supposed for the purpose of committing a felony.

A police constable stated that at 12.30 in the morning, he saw the prisoner, who was wearing silent india-rubber shoes, come from the gate of No. 58, Beulah Hill. Witness questioned him as to where he was going, and he replied that he had come out for a walk, as he had got the toothache.

The Mayor: He says he is a dentist. Is he?

Prisoner: I work at a dentist's.

The constable said he searched the prisoner, and found in his possession two chisels, a key-hole saw, a six-chambered revolver, nine cartridges, two picklocks, a box of matches, a piece of candle, an india-rubber mask, a lantern, three keys, a whistle, pocket-book, a surgeon's case, and a pair of gloves. It was not a toy revolver. Prisoner told witness that he had been in the Cape Mounted Rifles in South Africa, and that he bought the revolver there.

In reply to a question put by the chief clerk, the prisoner said he was seventeen next birthday. He had no questions to ask the constable.

Prisoner's employer, a dental surgeon, of Upper Norwood, said Ross had been with him about six months. He came direct from another situation, and witness had no complaint to make against him, with the exception that he was much given to reading trashy literature.

The Mayor (to Inspector Lemmey): Just give the bench the benefit of your long experience—do you think these are housebreaking implements?

Inspector Lemmey said housebreakers certainly used chisels, picklocks, and keyhole saws.

The Mayor remanded the prisoner for enquiries, and told him that the police would communicate with his friends.

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The Belgian Government offers a prize of £2,000 to anyone who shall discover a chemical substance that will take the place of phosphorus in the making of lucifer matches.

## APPOINTMENT.

John J. James, L.D.S. Eng., to be Hon. Dental Surgeon to Noble's Isle of Man Hospital.

# Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

*To the Editor of the "British Journal of Dental Science."*

### IRELAND AND THE DENTAL REGISTRATION ACT OF 1878.

Dear Sir,—I believe that on the 22nd of July, 1878, an Act was passed by Parliament, prohibiting persons to practise dentistry, and recover fees for same, without qualification or registration, at the same time giving facilities to those who were in (*bona fide*) practice, before the passing of the Act, an opportunity of registration, without the necessary curriculum.

The Medical Council, I will admit, had enormous difficulties to contend with, admitting numbers who had no claim whatsoever.

I believe their leniency extended until 1882, and then their doors were finally closed, and yet with all the power vested in them, they have been unable to cope with the unregistered men of the Dental profession. Ireland is the charlatans' hunting ground. The *modus operandi* of the unregistered in Ireland, is to designate himself as a company, some go so far as to prefix American to it, a terrible libel on the unfortunate graduate of America, who, as far as my personal experience goes, is a thorough good dentist, and a man of exceptionable abilities in his profession.

Yet these men are allowed to pursue their nefarious trade to the detriment of the public at large who are deceived by glaring seductive advertisements. In the country towns it is pitiable to see the trusting, ignorant class, pinning their faith to these unscrupulous imitators, and parting with their hard-earned money for an article utterly useless, and detrimental to health or comfort, subjecting themselves to operations cruel in the extreme, in the matter of excising and extracting sound and useful teeth.

Such are the real facts which I have witnessed myself.

My question, Sir, is this: How much longer is this disgraceful state of affairs to continue? If we wait for a reform in our registration laws, as we now stand, our grandsons might reap a benefit of a new legislation. A quick decisive step should be taken by the Medical Council compelling all Dental Institutions, American Dental Surgeries, &c., &c., to be registered, and to return monthly a complete list of assistants employed, together with their qualifications, at the same time making the said Companies amenable to the law for an infringement. Covering then would not be known, and those who wished to carry on advertising businesses could do so legitimately without fear or censure, together with the inconvenience as practised now of concealing their names.

I am, Sir.
Yours obediently,
JOHN ENDER PALMER, L.D.S., R.C.S.I.

25, Vernon Street,
S.C. Road, Dublin.

We have to remark upon our correspondent's letter;—I. He has misread the Act which does not prohibit "persons to practise dentistry," but only prevents them using any title implying they are registered under the Act, or are specially qualified to practise dentistry. Of course only registered persons can recover fees. 2. Our correspondent has credited the General Medical Council with larger powers than it possesses, and especially with respect to the provisions of the Companies' Act. 3. A good many of his professional brethren would regard our correspondent's proposed remedy as being possibly worse than the disease. They hope that legislation, now under consideration, may modify the present Companies' Act, and would strenuously object to "Institutions," and other *commercial* speculations being taken under control by the G.M.C. The Public will not benefit in health and comfort from commercially-conducted practices; the true professional spirit must actuate the dentist of the future, and the patient will learn to trust him. This satisfactory result cannot arrive at once, and disaster to health and pocket is unfortunately one of the ways in which the Public learns its preliminary lesson.—Ed. B.J D.S.

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*To the Editor of the "British Journal of Dental Science."*

Dear Sir,—Your editorial note to the enquiry in the last number as to whether or no it was necessary to have a doctor present in every case of anæsthesia should not pass unchallenged. If dental surgeons after two years hospital practice, personally taking part in say three thousand cases under Nitrous Oxide gas, listening to special lectures on physical signs, and dealing under the continual teaching of eminent anæsthetists with all sorts and conditions of constitutions; if after all this they rank as laymen, how much more should the numerous medical men who have never seen Nitrous Oxide administered. I say nothing of chloroform, whose use in the dental office should be honoured in the breach rather than the observance, or of ether where the extent of the operation requires two able-bodied experts; but in regard to the use of the dental anæsthetic *par excellence*, does not our hesitation savour of professional cowardice? We run risks of divers kinds every week, in every tooth extracted. Who can positively say what bleeding may follow, what shock take place, what slippery root escape into the larynx. The worst cases of collapse often occur when no anæsthetic is given. We face these affairs confidently, but with gas call in a doctor, to whom in all probability we have ourselves taught the rudiments of Nitrous Oxide anæsthesia to share the remote danger of a coroner's censure. Can anyone name a single instance where a fully qualified dental surgeon with a sharp assistant in the room, could not have dealt with all the effects of the gas just in the same way as the doctor?

It is no slight to our medical brethren, but simply bare justice to ourselves to claim the right and ability to deal with the operation under nitrous oxide gas on our own responsibility, and I for one intend to follow that course whenever the physical signs and circumstances of the case are not abnormally dangerous. If patients desire their medical man to be present, send for him by all means. If they are well to do let them humour themselves, but to fine a poor man or woman the equivalent of a greater part of a week's toil to them, because we dare not do alone what we are specially qualified to do, is very hard. Many a nervous girl has suffered the agony of bad extractions, because the double fee was prohibitive, where the dental surgeon in my opinion should have done his duty fearlessly, and given the gas with his own trained assistant by his side.

The majority of registered dentists already give gas in this way; and it is often merely policy, playing into one another's hands, with those who send for the doctor every time. This "policy," is robbing the poor and struggling of a relief from pain they are as fully entitled to as the wealthy. Why not claim the right to exercise the training in every detail of Nitrous Oxide treatment the dental Colleges are alone giving thoroughly to their students?

Yours truly,

CHARLES N. FOX, L.D.S.

(We are very glad to publish Mr. Fox's letter, although it was written as Mr. Fox has since informed us under a misapprehension. The answer to the query was not "our editorial note," but a quotation from *The British Medical Journal*. See Editorial article.)

## AMALGAM CEMENT FILLINGS.

Dr. Cobey, of Washington, in the *Cosmos*, says of his method: Mix the amalgam after preparing the cavity to be filled, thoroughly fill this cavity with cement while it is in a "flowing" condition, and as soon as the cement has set sufficiently to offer just a slight resistance to the touch of an instrument, begin to pack small pieces of amalgam in the centre of the cement, forcing it in with small pointed instruments, being careful not to let the instrument penetrate the amalgam far enough to be in contact with the cement. As more amalgam is added use larger instruments, spreading the amalgam until the margins are reached. When the cement has sufficiently hardened to clean away from the margins nicely clear them of cement and continue the amalgam to a finish.

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To keep burnishers in good condition, procure a thick piece of sole leather, cut a narrow groove the whole length af the strip; sprinkle rouge in the groove any apply burnishers until perfectly bright.

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## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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# CLEFT PALATE.*

By Mr. Bradburn.

Cleft Palate may be divided into two classes—acquired and congenital. Acquired lesions include all of those cases where the individual, having been born with a normal oral cavity, later in life suffers a division of the hard, or of the soft palate, or of both. This misfortunate mischance may be caused by an accident, such as a knife thrust; the sequence of disease, usually syphilis; or the result of a surgical operation for the removal of malignant growths.

The acquired lesions may be very slight, as a mere perforation of the hard palate, or they may be most extensive in character, comprising a complete cleft of the hard and soft palate, with total destruction of the vomer and turbinate bones, as well as the bridge of the nose, and sometimes the nose itself. Such an extreme case would only have its origin in disease. Between the two extremes cited an endless variety of cases are found, many of which will tax the ingenuity of the operator to its utmost.

Nevertheless, whether the acquired lesion be of small or great extent, the prognosis is more certain than in the congenital cases, because it has been shown that if the operator succeeds in replacing the lost parts with an instrument properly constructed and suited to the individual requirements, normal functions will be restored almost immediately, for the patient needs but to accustom himself to the new and strange condition in which he finds himself to be able to speak as well as ever ; this because he has acquired all the normal habits of articulate speech before meeting with disaster.

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* Read before the Liverpool Dental Hospital Students' Society.

On the other hand, congenital cleft palate is present in the infant at the time of birth, and is due to a partial or total failure of union between the palatal segments of the maxillary processes. When the cleft extends forwards beyond the maxillary palatal processes it may traverse any of the intermaxillary sutures. Of other defects, one is occasionally to be met with in which one or two small vertical clefts may be seen in the anterior pillar of the fauces having a separate mucous investment. A more remarkable condition is the presence of a congenital oval hole, situated at the junction of the hard and soft palate, and unassociated with other defects. The extent of the cleft may vary from a bifid-uvula to an extensive fissure traversing the whole length of the soft and hard palate, extending anteriorly through the alveolus on one or both sides of the os incisiorum, to end in a single or double fissure of the lip.

Between these two extremes any intermediate condition may be enconntered. There may be a partial or complete cleft of the soft palate alone, without fissure of the hard palate. In rare cases the hard palate, alveolus, and lip are fissured, the soft palate being undivided.

Clefts confined to the hard palate alone are almost unknown. Behind the anterior palatine canal the cleft is usually spoken of as a mesial one, in front of this orifice the cleft diverges outwards on one or both sides, as it passes forward it involves the alveolus. As a matter of fact, the posterior portion of the cleft is usually situated somewhat to the left of the middle line. The septum of the nose in cleft palate, descending in the mesial line, approaches, but more commonly does not become adherent to either margin of the cleft.

Frequently, however, the septum becomes attached to one of the margins of the palatal fissure (usually to that of the right side) this condition being commonly found in conjunction with left-sided unilateral alveolar hare lip.

Causes. In a short paper it is impossible for me to enter in a detailed manner into the origin of the causes of arrest of development. But at the same time the question is of such an interesting natnre, that I think it would be a pity if it were not discussed even in a cursory way. Mr. B. Sutton says:—"There can be no reasonable doubt that defects arising in the course of development of an individual, are in many instances transmitted to the offspring. Malformations, as such defects are called, arising in this manner are usually classed as arrests of development, and as it is clearly established that the embryological history of a complex individual may be regarded as an abbreviated history of its evolution, it necessarily follows that should the development of a part be arrested at any particular stage, we should expect to find, in some less specialized mammal, this stage represented as a permanent condition. It may be useful," he adds, "to describe an instance in which it has been possible to produce a permanent variety in which the existence of a malformation is the distinguishing feature. This is the more important because, as a rule, defects of this class appear sporadically in a family, but do not reappear so constantly to become as it were, a matter of entail. This may be in part explained, perhaps, by the fact that attempts are not made to propagate the malformation, as is done in domesticated animals.

The malformation of cleft palate and hare lip is not by any means confined to the human species, but occurs in horses, calves, sheep, dogs, and even lions. In the human subject it has been known to affect several members of the same family, and to occur in the offspring of the affected members. The defect takes the name hare-lip because the hare, in common with a few other mammals, exhibits a median cleft in its upper lip. This cleft is an exaggeration of the furrow which is present on the upper lip of many mammals, and extends on to the nose. In children affected with hare-lip the cleft is rarely situated in the middle line, but to one or other side; sometimes the lip is cleft on each side, the median piece standing forward from the nose like a peninsula. An enquiry into specimens of hare-lip occurring in mammals generally, discloses the fact that in some the cleft may be lateral, as in man, but in others it is median in position."

In the summer of 1886, whilst staying in Paris, Mr. Sutton with Mr. H. W. Freeman, of Bath, procured a pug-bitch with a peculiar cleft in its nose. At first they thought that the case was an example of hare-lip, but on making enquiry they found it to be a distinguishing feature of this breed of dogs, and that it conferred upon them a high money value. The bitch was brought to Bath, and Mr. Freeman was successful in crossing her with a Skye-terrier and obtained some pups. Half the litter had normal noses like the dog, the remainder had split noses like the mother. The pups from this litter since then had young with cleft noses, and the malformation was well established. The deformity consisted of a median vertical split in the upper lip, extending some distance between the nostrils and involving the hard palate. Apart from its special interest, the malformation is of value as showing that defects, arising from arrested growth during embryonic life, are transmitted, and this is clearly the case not only in connection with the lips, but with many other parts of the body. These facts concerning the transmissibility of defects in the dog's nose tend to show that it is probable, if it were possible to practise selective breeding in the human species s among dogs, a race of men with hare-lips and cleft-palates could be procured, and this view is further strengthened by the knowledge that in some districts where the inhabitants are not very numerous a sort of indirect selection goes on with the effect of perpetuating deformities.

An excellent example of this is given by Prof. B. Windle, in a paper on "Congenital Malformations and Heredity." He remarks that a singular account given by Devay, seems to show that under favourable circumstances, continued for a sufficient length of time, a separate breed of men, possessed of some malformation, might be produced, whilst it also shows the instability of such a condition, which must persist for some time, leads to its being easily stamped out by the introduction of fresh and untainted blood.

The treatment of congenital cleft palate is either by an operation or by means of either an artificial velum or an obturator, and for acquired cleft palate, by means of the same instruments, operation being generally useless.

Dealing with the operative treatment as briefly as possible, at the present time it is generally agreed by most surgeons that the operation, to be successful, ought to be performed as soon after birth as possible, generally between the age of two or three, although many successful operations have been performed on persons as old as twenty. The reason of the non-success of the operation in the past was due to the fact that the muscles which move the soft palate were allowed to remain instead of being severed as at present, for no sooner was the palate sutured than the muscles strained the union to such an extent that the parts were torn asunder.

Although many surgeons, and still a greater number of dental surgeons, rather regard surgical interference as useless, yet the operation is generally most successful, and is certainly the best way when possible, of treating the malformation.

The mechanical treatment which the dental surgeon supplies to a cleft palate patient, is either an artificial velum or an obturator, both of which are admirably adapted to the connection of the abnormal speech of these sufferers, and either of which may be requisite in a special case.

The knowledge of how best to serve a cleft palate patient, and what manner of instrument is best adapted to his requirements, necessitates an intelligent comprehension of his needs, as well as of the principles upon which obturators and vela are constructed, together with the uses which they are meant to serve.

In the production of articulate sounds the normal individual is supplied with a soft palate, or natural velum, of great mobility, suspended from the posterior border of the hard palate. This natural velum serves two important purposes. First, it is needful in the production of many sounds, that they should be free from nasal resonance, which would result if permitted to escape through the nasal passages. Second, the natural soft palate serves as an abutment against which the tongue rises in the formation of such sounds as k, g, and ng.

A cleft of the palate consequently leaves the patient with no means of shutting off the nasal passages, and with an inadequate organ with which to produce the sounds specified as well as many others.

The artificial palate, therefore, whether velum or obturator, must enable the patient to completely shut off the nasal passages, and it must stop the gap in the roof of the mouth, restoring the normal vault, and rendering possible the production of all the sounds with which the cleft interfered. The artificial velum and the obturator both accomplish this, but their modes of action are quite distinct.

The artificial velum, which has proved to be the simplest and at the same time the most universally efficacious, is the invention of Dr. Norman W. Kingsley. It is made of soft rubber (vulcanite) from which fact it is clear that the theory of its action is to stimulate the movement of the natural organ which it replaces. Being exceedingly mobile, it responds to the movements of the muscles which it engages, rising and falling exactly as a natural velum would, while it is so fashioned that at the same time it occludes with the ridge of the pharyngeal wall, completely shutting off the upper passages.

It may be well to add that the mere insertion of an artificial plate cannot be expected to enable the patient to speak correctly, any more than the possession of a band would make the owner a skilled dentist.

The artificial palate, properly constructed, supplies the patient with the means of perfecting his speech, but perfection itself must come through practice. Education by a teacher who thoroughly comprehends the needs of the cleft-palate patient will greatly shorten the time required for improvement, as well as ensure a better final result. The co-operation of the patient is, of course, absolutely necessary.

The reason why I mention this at this point is because, whatever doubt there may be in older patients as to the choice between the soft velum and the obturator, with children, and especially young children, the velum is the one and only best dependence.

An obturator, on the other hand, is an instrument designed to merely fill a gap or close an opening in the palate. To be of any service the instrument must be so constructed that it accomplishes all that the artificial velum enables the patient to do, even though in an entirely different manner. It must accurately fill the cleft when the parts are at rest; it must also fill the fissure wherever and no matter how far the movable sides of the cleft are drawn upwards. To serve such a purpose the obturator must be so thick that when the sides of the palate are drawn upward to their greatest limit they still rest against the sides of the obturator. Moreover, it must be of sufficient length to be reached by the posterior wall of the pharynx, and it must be thick enough at the back end, so that when the pharynx does come into contact with it the closure of the posterior nares will be complete. By the term thick is meant the diameter through the obturator from the oral to the nasal surface and not to the thickness of the rubber, for these obturators are hollow bulbs, and the rubber has but the thickness of a single sheet. In use an obturator, unlike the artificial velum, is stationary in its position, but it is of such form that the pharyngeal muscles of the throat in the movements incidental to the production of articulate sounds hug the obturator, and so separate the cavity of the nose from the cavity of the mouth.

Summing up, the soft-rubber velum is the instrument best adapted for correcting the speech of cleft-palate patients; that having learned to speak by its use, these persons will do well with a Suersen obturator, with a hinged obturator, whether the hinge works or not, and in some cases even with the crude class of instruments designed for no other purpose than to stop the opening in the hard palate. There is but one possible condition where a hinge is needed in connection with a hard-rubber bulb, and that is where a surgical operation has failed, a bridge having been constructed across the centre of the fissure, leaving a cleft posteriorly and a perforation anteriorly. The instrument for such a case may be a hard-rubber bulb which passes through the anterior opening, filling the posterior cleft and reaching to the pharyngeal wall during the act of speaking. Such a bulb is hinged to the plate, and it necessarily rises and falls, because it rests upon the upper side of the surgical bridge, and the levator muscles cannot elevate the halves of the divided palate without raising this bridge, and with it the extension which carries the obturator.

No appliance made by the dentist needs to be more accurately fitted than an artificial palate. It is therefore necessary that the plaster model should be as nearly as possible an exact reproduction of the mouth which it represents.

The ordinary impressions taken for artificial denture is easy, because a model is required only of that portion of the mouth, the tissues of which overlie bone. Therefore, whether the impression material be introduced hot or cold, hard or soft, in large or small quantity, the resultant impression is approximately the same, because of the resistance offered by the roof of the mouth against which it is pressed. When, however, too much material is carried into the mouth, so that it extends beyond the border of the hard palate, the common experience is what is called gagging. A consideration of what this "gagging" is, will make more readily understood a fundamental principle involved in all cleft-palate cases.

The soft palate is sensitive, and when the impression material is brought into contact with it, the result is an irritation or tickling, whereupon the involuntary muscles of the throat endeavour to draw the parts away from the intruding substance. Thus the velum (which under ordinary circumstances hangs down almost at right angles to the hard palate) is elevated, and consequently were a model to be made from such an impression it would be inaccurate as to the posterior portion of the mouth in that it would not be a representation of the parts at rest. With the velum divided as in cleft palate, the disturbance of these sensitive tissues upon the introduction of the impression material is even greater. The two halves of the soft palate are not only drawn upward, but they also approach each other. Thus the resultant model will show the cleft narrower than it really is when the parts are at rest, and the pose of the divided palate will be wrong, so that no proper calculation can be made for restoring the true arch of the vault.

Thus it is seen that no one can obtain an absolutely accurate impression of the divided velum in its normal pose. Nevertheless, a model may be made which will be as accurate as any model of the mouth can be,

The method of procedure is as follows:—Select an impression tray of the ordinary form, just large enough to embrace the arch without stretching the mouth, and long enough to reach slightly beyond the posterior border of the hard palate, adding a flap of sheet G.P. if necessary. This may be carried back as far as the uvula, but should not touch the velum at any point.

Plaster of Paris is mixed in the usual way, a little salt being added to hasten the setting, and warm water used to render it more acceptable to the mouth. A pinch of powdered vermillion will colour the impression, which will aid in separating, and is preferable to placing the colour in the plaster for the model.

The plaster is placed in the tray in quantity proportionate to the height of the roof, less being used where the cleft is in the velum only, than where the fissure enters the hard palate also.

The use of too much plaster is to be avoided, lest it escape and trickle down the throat. The impression tray is to be carried into the mouth just as the plaster gives evidence of setting, and is pressed up quickly and firmly, and then held steadily until sufficiently hard for removal. The plaster which remains in the vessel in which it was prepared will be a guide to its setting, and as soon as it will fracture sharply the impression should be withdrawn.

Where the fissure extends into the hard palate it will occasionally occur that the plaster which passes up into the inferior meatus of the nose cannot be withdrawn with the impression, but if the impression be removed at the proper moment, the plaster will fracture along the line of the fissure and that portion left up in the nares may be taken away with the tweezers. Ordinarily all that is required in a model from which to make an obturator or articulating vela, will be absolutely accuracy as to the oral aspect of the parts and the borders of the fissures from its apex to the uvula. It will very rarely be essential to procure a perfect impression of the upper or nasal side, except that the operator should observe the thickness of the tissues along the borders of the cleft, the position of the vomer, and whether it is likely to interfere with the design of the instrument, as it often will where the fissure only slightly enters the hard palate, which can readily be accomplished by carrying a little plaster through the fissure at the front of insertion of the vomer into the hard palate, before inserting the impression as previously described. In accidental fissures resulting from disease or other cause, where the aperture is small, the precaution should be taken to lay across the aperture a bit of Japanese tissue paper folded two or three times. This paper will yield sufficiently to allow the plaster to take a perfect impression, yet resists its passage through.

A trial plate made upon the model, with an extension fitting into the fissure, will indicate at once, when carried to the mouth, how much wider the natural cleft is when the parts are at rest. The natural cleft is to be observed closely in connection with this trial plate, and the cleft in the model is widened and altered by cutting away the plaster with a knife until the trial plate which exactly follows the outlines of the cleft on the model will similarly fit the cleft in the mouth. At the same time the edges of the cleft in the model may be rounded, and the pitch of the palate corrected to agree with the mouth, by adding plaster with a camel's hair brush.

Omiting the making of an artificial velum, I will conclude by describing the construction of an obturator.

An obturator may be made for a patient where the cleft involves the soft palate only, but is more commonly resorted to where both soft and hard palates are fissured.

A correct model having been obtained, the fissure in the hard palate is filled with wax so that the arch of the vault is restored. Dies are made and a plate (either of gold or of irido-platinum) is swaged to fit this reconstructed model, with the result, of course, that when carried to the mouth it bridges over the gap in the hard palate. The plate is provided with an extension at the posterior part which shall support the obturator, and is attached to the teeth by gold clasps (that is if there are any teeth left).

The metal plate and clasps having been accurately fitted to the mouth, a loop of copper wire is temporarily soldered to the upper side of the plate (with soft solder) and extended backwards about two-thirds the length of the fissure. The object of this is to hold a mass of impression material which is to be used for forming the model of the obturator. The impression material (generally wax) is wrapped about the wire loop and then fashioned into the general shape of the fissure, when it is hardened in cold water. A trial in the mouth will indicate wherein it must be altered by trimming with a sharp knife.

The mass having been brought to an approximation of the proper form after this manner, it is then slightly softened in warm water and again placed in the mouth, whereupon the patient is directed to swallow several times. This compels the levator and constrictor muscles to close upon the softened mass, and mould it into such shape as will be required to enable the patient to completely close the opening to the nares.

Upon removal the mass will have assumed an irregular shape, which now must be altered to furnish the final model of the obturator. The palatal surface is trimmed into a continuous flat surface, so that in connection with the plate the arch of the vault is completed, and the gap in the back of the mouth bridged over. The upper surface is similarly cut away, and is usually best formed with a depression curved laterally, experience showing that such a form is best adopted for the obliteration of the nasal quality of the voice. Thus the sides and the posterior end are left undisturbed, as they were moulded by the action of the muscles.

It must be remembered that no matter how yielding the mass may have been, it is also sufficiently resistant to have prevented the muscles from closing to their utmost limits. It is therefore necessary to trim these surfaces so as to still further reduce the size of the bulb, especially at the posterior end, where the ridge of the pharynx is expected to touch it. In the region of the uvula the sides must be trimmed away so that they may close under the obturator, and to this end that part of the bulb may be narrowed at the lower and widened at the upper side, thus producing inclined planes against which the levators will play, and be in contact at all times during their contractions.

The model having been brought to this point, plaster is mixed as for an impression, and a little placed upon the upper side of the plate, extended from where the impression material ends sufficiently forward to reach the anterior end of the fissure when placed in the mouth. The plate with plaster upon it is then quickly carried into place and upon removal the plaster will have taken an impression of the forward part of the cleft. It is cut away to a level with the upper side of the impression material, and with it completes the model of the obturator which must now be reproduced in hard rubber, (horn colour being best).

The make the bulb light, when in the flask, the sides of the bulb should be lined with sheet rubber, five or six drops of water introduced and the whole made air tight and vulanised.

The bulb when finished is to be fitted to the plate, the proper position being determined by the models which were taken while the plate and wax model were united. A hole is drilled through the bulb and plate, through which a platinum bar is passed and soldered to the plate, the opposite end being screw cut and supplied with a nut.

The hole drilled through the bulb also serves for the removal of $H_2O$ caused in vulcanising.

The surface of plate over which the bulb is to lie is smeared with G. P., the bulb slipped over the bar, and the nut turned down until it impinges. Then by warming the plate over a spirit flame, the G. P. is softened, and the nut screwed down driving the obturator tight against the plate, the G. P. serving to form a water-tight joint.

The plate and bulb are polished, and, if not broken by the pupil during that process, are ready for the patient.

## THE MECHANICAL TRAINING OF DENTAL PUPILS.*

By George Cunningham, M.A., Cantab., L.D.S. Eng., D.M.D. Harvard.

I suppose the reason I have been asked to give an address on this subject is that I have done something in the direction of the mechanical training of dental pupils. There may be some present who do not agree with the system I advocate, and I appeal to them not to regard my remarks from the point of view of the individual requirements, but rather from that of technical education. In my little school in London, we are endeavouring to develop their views and improve their methods. The Inspector, appointed by the General Medical

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* Communicated to the Manchester Odontological Society.

Council, recently paid a visit to the School, and I, being rather anxious to know the impression formed on the official mind with regard to our school, approached the Inspector. His opinion was favourable, to a certain extent, but he seemed to regard the preliminary training to which the advocates of the technological system attached so much importance as a waste of time. I, therefore, purpose to prove to you that the preliminary manual training was no loss but a distinct gain of time. Whilst there is a science of dentistry, it is absolutely necessary to develop mechanical dentistry, and all that it means and may be made to mean. One great difficulty in the way of education, speaking in the broad and general sense, at the present day is the lack of opportunities for technical training. I am glad to know that Owens College has made itself prominent in the direction of such training, for Oxford and Cambridge, and some other Universities, will not think of teaching technical subjects as such. They do not believe in teaching anything by which a man could gain a livelihood; they simply want to devote their energy to culture. At Owens College they combine the University with the Polytechnic School, and, in keeping in view the trade and commercial aspect of education, it has gained a grand and just reputation. Many of our profession, I regret have yet to realise what dentistry as an education really means, and in developing the theoretical side of the subject only we are on the verge of losing the practical training that was given in the good old days. Pupils expect, now-a-days, the equivalent of the seven years' system in three or less. I strongly recommend a careful study of Woodward's "Curve of Work," as applied to the ordinary elementary education. I have applied this system for all that it was worth in dental training, and my experience is that by changing the exercises the pupil is trained so that his brain, eye and hand work and develop rapidly together, and that absolutely unconsciously. Some may think that there is a certain monotony in the training in woodwork, and that the boys will lose interest in their work, but it is surprising what variety there is, and how the interest is sustained. The teaching in the matter of graceful curves at the lathe, as shown by the exhibits made, is found to have excellent results, for whilst it helps the training of the hands, it also promotes mental culture and appreciation of art forms. Proficient in this direction, the pupils are next taught how to file to the square, and if at the end of three months they are not able to treat a rough block of cast iron properly, they discontinue their education at the school. I find it also desirable, in addition to wood-carving, that light, delicate manipulative work should be cultivated, and glass-blowing has been instituted as a branch of manual training to that end. I do not impose that, however, in cases where any disinclination is shown. Then they are instructed how to make clay models and plaster casts, and in this matter I am not particular about the subject being one of dental interest. My idea is to make the pupil an efficient handicraftsman, and I encourage him while modelling to introduce an artistic element into his work. After this preliminary training, the pupil passes on to the dental laboratory, where he soon outstrips others trained by the usual methods. I unhesitatingly assert that the results of the work are good, and I think the system should be supported and encouraged more generally by the profession.

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GOOD EYESIGHT is not decreasing among Germans in the army. On the contrary, according to statistics furnished by Surgeon-General Seggel, the proportion of recruits endowed with more than the normal power of vision is now 92 per cent., whereas in 1873 it was not more than 56.

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LONDON, MAY 1, 1898.

## AGREEMENTS BETWEEN PRINCIPALS AND ASSISTANTS.

A paper was recently read by Mr. Ashley Barrett on the above subject, followed by a discussion in which the matter was debated at considerable length. As it is a question which affects many of us very closely, a few lines on the subject may not be out of place. The word assistant must be taken to mean a qualified operating assistant, or at least an assistant who is brought into intimate contact with his principal's clients, and who is not debarred from having his name placed on the Dentists' Register.

When a practitioner engages an assistant, it is usual for some form of agreement to be drawn up between them containing stipulations as to hours of work, salary, illness, and a promise by the assistant not to engage in practice within a certain time and within a certain radius after leaving his employer. It is upon this last stipulation that Mr. Barrett's paper chiefly dwelt, as it is by far the most important to the principal. When the increase of a practice demands further help, the principal naturally endeavours to secure an able man. Furthermore, to induce his patients to repose the same confidence in the assistant as is felt in the principal, the latter, in introducing his colleague, must do so in laudatory terms. The confidence and intimacy thus gained by the assistant might lead to his starting for himself in the immediate neighbourhood unless some deterrent clause were inserted making it penal for him to do so. While he is with his employer he receives a salary previously agreed upon, he is gaining experience in practice routine and in human nature, and for him to endeavour in addition to alienate his employer's clients is dishonourable. Of course clients cannot be forced to remain with the same practitioner; if they like the assistant better than his master they are at perfect liberty to transfer their allegiance, but the transference should not be made too easy. According to Mr. Barrett there are three ways in which the practitioner may protect himself. Firstly, by frequent change of assistants. This method is unsettling and unsatisfactory to everyone concerned; the assistant is some little time in getting settled and used to the practice and the patients accustomed to him, when his place is taken by a fresh comer. Patients do not like fresh faces, and the practics suffers. The assistant too, through perhaps no fault of his own, is dismissed simply as a precautionary measure. The second measure of protection, and the one most usually adopted is to require the assistant to sign a declaration binding himself under a penalty not to engage in practice after leaving his principal for a certain number of years within a specified radius. This radius of course varies as regards town and country practices. In the country it may be as much as thirty miles or even more, while in London it may not exceed a street or a district. It is doubtful whether the liquidated damages mentioned in this form of agreement could be recovered by a principal, because he would have to show that his practice had been damaged to the extent mentioned—a difficult matter to do. We believe a more effectual plan is to apply for an order restraining the late assistant from practising within the limit, and if he persists in doing so he may be committed to prison for contempt of Court. The facilities of transit and the development of the telegraph and telephone make mere locality a much less important factor than formerly, so that Mr. Barrett suggests a third remedy, which is that an agreement should be signed by which the assistant undertakes to pay a penalty for every time he induces or solicits by letter, circular or in any other way the patients of his late employer to transfer themselves to him. The difficulty in this case would be to discover it in time, as unless it was done very regularly and widely it might be some time before it came to the late principal's notice.

If every one subscribed to the code of ethics there would be no need of agreements; but for the employer to insist on protecting himself is perfectly right and just, and no assistant should feel that any imputation is made upon his honour by being asked to sign one. If he intends to act honourably, it is no hardship doing so. At the same time we would caution assistants against signing any agreement too readily and without consulting those who have had experience in such matters. Employers will also find it to their advantage to act in a liberal spirit to those in their service, to give them a practical interest in their being faithful and industrious, and to feel that there are other ties between them besides mere monetary ones. And if, as will happen, patients prefer the assistant to his late employer, the latter must remember that sometimes, though not always, the patient may have chosen wisely, and he can, we hope, console himself with the thought that if they choose to leave him, he can afford to lose them.

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CHILDRENS' TEETH AT HOME AND ABROAD.—Mr. George Brunton has recently read a paper urging that increased attention should be paid to the mouths of school-children. Some of the statistics he produces are startling. As a result of the examination of the mouths of 10,517 boys and girls, of an average of about twelve years, in English and Scottish schools, it was found the number of temporary teeth requiring filling was 9573, and requiring extracting 8436; the number of permanent teeth requiring filling 13,017, and requiring extracting 6079, making the total unsound teeth 37,105. The number of teeth which had been already extracted was 2174, and of sound dentitions, free from caries, 1508, or 14·2 per cent. Last month there was published a notice of a paper by Lipschitz, of Berlin, which, it was remarked, contained statistics demonstrating in a very lucid manner the prevalence of caries in the teeth of European children. In Lucerne the examination of 1000 children ranging from seven to fourteen years showed that 74 per cent. were suffering from caries. In Hamburg, of 335 workhouse children, 12 alone presented perfect dentures, while in 693 children of a better social class, 98 per cent. of the girls and 95 per cent. of the boys had carious teeth. At Freiburg, among 3460 children, 98·7 per cent. showed defective dentitions, and in a neighbouring town, out of 747 examined, 98 exhibited caries in some form or other. Other statistics taken from German towns and villages gave the following result:—In 3347 children examined in Berlin 81·3 per cent. of the boys and 14·6 per cent. of the girls presented carious teeth, and in Ungarn, of 1000 cases observed, 87·2 per cent. were afflicted with caries. In these two latter groups the number of teeth examined was 78,248 and 3861 respectively, showing caries in 15·3 per cent. and 15·4 per cent. In Sweden, 1617 children presented 97·2 per cent. defective dentitions. This showed, said Mr. Brunton, that children on the Continent were worse off than children in this country. In conclusion he said we know the condition of our school childrens' teeth ; we also know what the remedy should be. Can we not do something to convince parents, guardians, and teachers of the necessity of strict cleanliness? The use of the tooth-brush after each meal would alone prevent a great deal of the decay and consequent suffering with which our children are afflicted.

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HABEAS CORPUS.—In the celebrated Jackson case it will be remembered that Jackson kidnapped his wife, and as an aid to her detention he burnt her bonnet. Mr. Summerville of New York, has also been deserted by his wife, and he has made several unsuccessful attempts to regain possession of her. His efforts being futile, his last attempt was not on her bonnet, but on her artificial teeth. He seized her by the arm, inserted two fingers in her mouth, and tried to extract the false teeth which he had given her as a wedding present, at the same time exclaiming, " You're too pretty, and I'm going to spoil your beauty." Summerville did not succeed in his design and fled. His wife obtained a warrant and he has been fined ten dollars.

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A New Clamp.—One of the drawbacks to the wearing of artificial lower teeth is that decay frequently makes its appearance around the tooth—generally a bicuspid—clasped by a band. If such teeth are efficiently filled they may last for an indefinite time, but it is often difficult to place a clamp on them which will hold the rubber dam sufficiently far down to excavate all the decay. To obviate this, Mr. Humby has lately described and shown a clamp which he claims as efficient for the purpose. It is of a horse-shoe shape, made of springy steel, and terminates in two sharp points. The points press into the cementum of the tooth on the buccal and lingual sides, the dam is slipped over the top of the clamp and tucked down beneath the points which hold it in its place. The top of the clamp can then be drawn forward to rest on the anterior teeth out of the operator's way.

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To Clean Marble.—The following is recommended: To clean the marble upon cabinet or table, take 2 parts common soda, 1 part pumice-stone, 1 part powdered chalk. Mix with water. Rub well over the marble. After the stains are removed, wash with soap and water.

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No More Dental Schools Wanted in the States.—The *American Dental Weekly* in mentioning a rumour that a new Dental School was going to be "run" in Georgia by a speculator says, "We simply wish to say there is no need for another dental school, not only in Georgia, but in the United States. There are enough now to supply the demand for the next twenty-five years. In fact, it would be more pleasing to hear that some of the large number now existing were "going out of business. If this new school is started, it cannot be because there is a need or demand for it, but simply because the promoter hopes to make money out of it."

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COPPER AMALGAM IN INCISORS.—The Swiss dentists use copper amalgam in incisors as well as molars. The effect is of course hideous, and we are told it would cause the staunchest friend of copper amalgam to give up its use, if he could for a week see the mouths of the Zurich dentists' average patients.

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AUSTRALIA AND DENTISTRY.—Australasia seems to be making headway in dental affairs. The Australian College of Dentistry in Melbourne is endeavouring to make the standard of instruction equal to that taught in the Colleges of Great Britain or America. We hope Sydney will be the next to follow suit, and also that the Dentists' Bill which was passed by the Legislative Council in 1896, and which has not yet got to the second reading in the lower House, may become law ere long. The *Australian Journal of Dentistry* is a new and brightly written little journal which we shall expect to see grow in size in due time. In an article on "Dentistry in Southern Tasmania," Mr. Rodway speaks of the heavy duties as follows:—

"Low fees is the first and most important of our misfortunes. Next, an iniquitous Government, contrary to the custom obtaining in civilised communities, levies a twenty per cent. duty on all instruments or material imported for the relief of suffering humanity. This shameful barbarity would be evil enough in itself, but its effect is to add to our troubles by making it impracticable for any agent to establish a branch depôt. This means that the wretched dentist not only has to pay a heavy duty that is unknown to his continental brother, but has to import all his own material, with the concomitant disadvantages of capital locked up, insufficient stock to choose from, and his due share of dead, worthless material. Against these trials we have a generous and discriminating public, who, though not prepared to shower abundant wealth on their dentists, expect sound treatment, and are willing to pay a reasonable fee, and, with a few notable exceptions, who get scant courtesy, do pay the fee down at once and have done with it. We have also a stringent Dental Act that threatens to make a meal of any pariah who cares to try his hand at diddling the public. And, lastly, we dentists of Southern Tasmania have uniform friendliness one for another."

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TO KEEP HANDS CLEAN IN THE WORKSHOP.—It is a good plan to keep old kid gloves and wear them when sand-papering or polishing artificial sets. Rub vaseline into the finger-nails, and over the fingers before putting on the gloves.

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THE UNIVERSITY OF LONDON.—We are sorry to hear that the Government has decided to postpone the consideration of the London University Bill until the Committee stage of the Irish Local Government Bill—which began on the 26th ult. —has been disposed of. As the Irish Local Government Bill is the principal measure of the session this means a long delay, probably until after the Senatorial election, which is fixed for May 16th. The death of Sir Richard Quain has created a vacancy on the Senate which Convocation will fill, according to precedent, by a graduate in arts or law. Two candidates—Mr. James Bourne Benson, LL.D., B.A., and Mr. Fletcher Moulton, B.A.—have issued their addresses and the election will turn solely on the London University Bill, which Dr. Benson supports and Mr. Moulton opposes. We hope that the cause of higher education may not be delayed much longer, as London has waited twelve years already.

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ANOTHER LOURDES.—At Castelvenere, near Beneventum, in the Samnite country, says the *Lancet*, a peasant woman has seen a vision of the Madonna who told her that near a neighbouring cemetery there would be found, by digging deep enough, an image of Our Lady of the Seven Sorrows, which claimed the worship of the faithful. The impression produced by this declaration was profound ; digging commenced and 60 feet below the spot indicated was discovered an arched vault, in the recess of which was found the expected image (a picture) of the Madonna. The countryside has sent its thousands to pay their votive offerings to the revealed Virgin, and already miraculous "cures" are announced—a blind man has recovered his sight, another man has been "cured" of cancer in the right hand—only from drinking the water that gushed out after the excavations and still flows abundantly. Of the pilgrims some have travelled a journey of fourteen hours. Indeed, we have all the makings of a "Neapolitan Lourdes" within measurable distance of one of Italy's greatest clinical schools. The "image," however, turned out to be "of most recent date," and the "cures" of lame, deformed, and blind votaries to be the old wives' fables of "promoters" interested in "running" a miraculous health-giving water. The prefect has forbidden further excavations and the bishop of the diocese has ordered the parish priests to withhold their countenance from the improvised shrine. That the incidents already described should have attracted thousands of the faithful to the spot remains the one significant feature of the whole affair—a sad commentary on the superstition and debasement of the Neapolitan peasantry.

ROOT CANAL FILLING WITH GUTTA-PERCHA.—Dr. A. H. Peck says that granted the canals are in an aseptic condition ready to be filled, they should be cleaned with peroxide of hydrogen, or some one of the several agents akin to it, that the gummy portion of the essential oils and other foreign substances may be removed, after which they should be thoroughly dried with absolute alcohol and heat, when the inner walls of the canals should be slightly moistened with eucalyptus, after which a very conservative quantity of chloro-percha of the consistency of thick cream should be passed in.

Then take the gutta-percha cone or point in a pair of pliers, and with a slight pumping motion press it into the canal as far as possible. Let it rest a moment. The chloro-percha and eucalyptus already there will soften the smaller portions of the cone, while that portion protruding from the canal should be softened with a few blasts of hot air from the the syringe, then with the canal plugger cold or just slightly warmed so the gutta-percha will not cling to it and be drawn away, the softened solid gutta-percha should be thoroughly packed to the uttermost end of its future abode.

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MENTHO PHENOL.—Dr. J. Morgan Howe, at the New York Institute of Stomatology, introduced a remedy for toothache, composed of one part of phenol crystals to three parts of menthol and melting the substance. It is a fluid of pale amber colour, and aromatic odour, very pungent in taste but not caustic. He finds it useful in pulpitis. Two drops to an ounce of water make an excellent mouth-wash. This may answer in some cases, but in one case in which we tried it the feeling of coldness produced by the menthol seemed to aggravate the pain of a hypersensitive tooth.

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A DENTIST'S EXTRAORDINARY CAREER.—Dufort, doctor, dentist, and wine merchant, had an extraordinary career in France and England before his condemnation to penal servitude for a period of twenty years. He was born of middle-class parents in the Gironde, and, being clever, was sent to study medicine. After a few years of application to work he obtained a post as a medical assistant in an asylum at Bordeaux. There he made his first mistake by allowing himself to be fascinated by a dancer on whom he spent a considerable sum of money which he stole from the cashbox of the asylum. For this he was condemned to four years' imprisonment, and on leaving gaol he went to London with a companion whom he had met in captivity. This person was a financial specialist, and the ex-doctor joined him in a swindling enterprise which ended in disaster. Dufort had to fly from England, returned to Bordeaux, where he started business as a dentist, married a girl who brought him a dowry of 32,000f. of which, as the judge who tried him said, he made a mouthful, and ran away to Lille. In the northern town Dufort became a wine merchant, but as money did not come in freely he resolved to imitate Pranzini and Prado. He met a woman named Victorine Constry one night at a theatre, and accompanied her to her residence. She seems to have had some fear of the man, for she hid her jewels in the kitchen, but subsequently fell asleep oblivious of danger. Dufort struck her when she was in bed a heavy blow on the skull, using a shoemaker's last for the purpose. The woman, however, when Dufort tried to strangle her, offered a determined resistance, bit him, succeeded in getting out of his clutches, and, breaking a windowpane, shouted for help. People, hearing the cries, soon arrived and captured Dufort, who allowed himself to be bound without a fight, and excused his doings on the ground that in the darkness he had taken Victorine Constry for a burglar. He was tried in the Northern Assize Court at Lille.

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Successful Case of Replantation.—Dr. A. N. Ferris, of Waterloo, Iowa, says in the *Digest*, "In June, 1895, I extracted a right superior molar, because on account of the tortuous, crooked roots and miniature canals I was unable to treat the abscessed condition. In the operation the anterior buccal root was broken off at its union with the crown, and I extracted it. I then disinfected and filled the canals of the unbroken roots, filled the cavity of the tooth with alloy, smoothed the surface where the root had broken off, and replanted the tooth. After a few days of slight soreness it became as useful as ever and is in good condition at the present time." The remarkable part of this case is that the molar is supported by two roots instead of its usual three. Three years seems the usual limit for the duration of replanted teeth.

# Abstracts of British & Foreign Journals.

## THE GENERAL MEDICAL COUNCIL AND DENTAL REPRESENTATION.

The following letter has been forwarded on behalf of the British Dental Association to the Medical Council at its Special Session on April 5 :—

To the Members of the General Medical Council.

British Dental Association,
April 4, 1898.

Gentlemen,—In the name of the British Dental Association we beg to suggest that you would take the opportunity of your present sitting to make known to Her Majesty's Privy Council your opinion regarding the nomination of a dental representative to a seat upon the General Medical Council.

We are, Gentleman, your obedient servants,
J. Howard Mummery,
President of the Representative Board of the British Dental Association.
W. B. Paterson,
Hon. Secretary ef the British Dental Association.

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The following letter from the President and Council of the Royal College of Surgeons in Ireland, has been forwarded to the Privy Council :—

To the President of the British Dental Association.

Royal College of Surgeons in Ireland,
Dublin, March 31, 1898.

Sir,—I am directed to express the approval of the President and Council of this College of the principle that a dentist, who should also be on the Medical Register, should be appointed to fill the first available vacancy on the General Medical Council arising from death or resignation of a Crown nominee.

Yours faithfully,
Robt. H. Woods, F.R.C.S.,
Secretary of Council.

The following is the text of a petition sent by the Manchester Odontological Society to the Privy Council on the question of a dental representative on the General Medical Council:—

To the Right Honourable His Grace the Duke of Devonshire,
K.G., Lord President of Her Majesty's Privy Council.

We, the Council of the Manchester Odontological Society, do respectfully pray that as a vacancy has occurred on the General Medical Council by the decease of Sir Richard Quain, your Grace may be pleased to advise Her Majesty to nominate to the said vacancy a duly qualified dentist, whose advice on the important questions of dental policy and education which are administered by the Medical Council would be beneficial, and would more fully represent the desires of the members of the dental profession, which has nearly 5,000 names on the Dental Register, and whose registration fees are in the hands and under the control of the General Medical Council.

And further, we earnestly pray that Mr. Charles Sissmore Tomes, F.R.S., M.A., M.R.C.S., L.D.S. Eng., may meet with the approval of Her Majesty's Privy Council for nomination to the said vacancy.

Signed on behalf of the Council of the Manchester Odontological Society, March 28, 1898.

J. H. Jones, L.D.S.I.,
President.
David Headridge, L.D.S. Eng.,
F. Masters, L.D.S. Ed.
Hon. Secs.

A short petition has been forwarded to the Privy Council by the leading members of the dental profession in Exeter; and other petitions from local dental societies are in course of being forwarded.

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The vacancy caused among the Crown members of the General Medical Council by the death of Sir Richard Quain will be filled up shortly, probably at the next meeting of the Privy Council. It is well known that three different sections of the medical profession consider that they have a claim upon the Duke of Devonshire for this seat—namely, Mason College, Birmingham, as the germ of a new Midland University; the dentists, who are unrepresented upon the General

Medical Council while owning obedience to its discipline ; and the great body of general practitioners as opposed to consultant practitioners and teachers. We shall not be wasting time in considering the demands of these sections, although the appointment is in the hands of the Crown and not in those of the medical profession, for everything which affects the constitution of the General Medical Council is of importance to all of our readers, who ought to be in a position to judge of the use that is made by the Crown of its patronage.

The claim of Mason College, Birmingham, being the weakest, can be considered and dismissed the most easily. There is no Midland University. While giving full credit to the enterprising spirit which desires to regard as *un fait accompli* a matter which is as yet only mooted, we think it decidedly " previous" that a university in embryo should be represented upon the General Medical Council before it is viable. We have the less hesitation in expressing this view strongly because universities and medical corporations are already fully represented upon the Council. These Bodies possess twenty seats out of thirty, leaving ten to be divided between the Crown and the Direct Representatives of the profession,tso that it would not be conducive to good balance in the Council that one of the seats belonging to the Crown should be handed over to a forthcoming university. With regard to the dentists, they have a far better case. They are a very numerous body and have interests which are more widely spread than the interests of any particular corporation. They are totally unrepresented upon the Council, while their Register is under the ægis and control of the Council and their educational curriculum has to be maintained to the satisfaction of that body. It is manifestly hard upon the dentists that they should be in disciplinary subservience to a government in whose deliberations they have no particular voice. Therefore their claim is a good one. But, on the other hand, it is doubtful if their time has yet arrived. It is nearer than the time of the Midland University, but there is no great hurry. There are some five thousand dentists on the Dental Register and only an insignificant proportion of them, about one hundred and forty in number, possess medical qualifications as well as those licensing them to act as dental surgeons. This does not show any marked educational evolution and in the eyes of the medical profession it may militate against their claim to representation. We do not go quite so far as this—indeed, it might be argued that the more specialised the dental profession is the more right has it to demand special representation—but we do think that the case of the dentists is not so urgent that one of the Crown Representatives should be told off to hold a brief for them. They have as yet suffered little by having no voice on the Council, while on all hands it is admitted that the profession of dentistry is improving in status and knowledge by great strides. When under existing arrangements there is manifest progress towards better things we do not see that there is any necessity for immediate change, though we hope that in the near future the dentists will have their representative, and one who shall be added to the existing Council with their needs in view.

*The Lancet.*

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To the Editor of *The Times.*

Sir,—Since you were good enough to publish my previous letter on the above subject, the lamented death of Sir Richard Quain has created a Crown vacancy in the General Medical Council, which, in the course of a few weeks, her Imperial Majesty in Council will fill.

I venture, therefore, at risk of being considered importunate, to ask you to allow me to reiterate the strong claims the dentists have, upon the grounds of equity, to this appointment.

The medical Press has pointed out "that three different sections of the medical profession consider they have a claim for this seat"—viz. (1) a possible University which at present only exists in embryo ; (2) the general practitioners ; (3) the dentists.

With regard to these claims it may be urged that the first may certainly be dismissed until after its actual birth, while of the second it may be said that the general practitioner is already ably represented. The third, therefore, alone appears to have any justifiable right of recognition.

In the General Medical Council not only is medicine and surgery strongly represented, but most of the special departments of practice also, sanitary science, ophthalmology, gynecology, &c. A medical man who is or was a dentist would, therefore, be an appropriate person for the Privy Council to appoint.

May I, as shortly as possible, enumerate some of the principle grounds upon which we appeal for recognition?

1st.—There is a special Act of Parliament, the Dentists' Act of 1878, administered by the G.M.C.

2nd.—A special educational curriculum that has to be maintained to the satisfaction of the G.M.C.

3rd.—A special diploma, the recognition of which is in the hands of the G.M.C.

4th.—A special register under the control of the G.M.C.

5th.—A special dental fund provided by the fees of dentists for registration, which is expended by the G.M.C.

6th.—One-sixth part of the expenses of the office are defrayed out of the above fund.

It must be admitted, therefore, that upon all equitable grounds the dentists should have the vacancy awarded them.

The present moment is a very opportune one for such an appointment to be made, because at the next session of the General Medical Council the dental curriculum will be under consideration, when it is essential, in order that the funds shall not be wasted, that some one skilled in the practice and politics of the dental specialists shall be present to guide the discussion.

The British Dental Association has suggested that Mr. C. S. Tomes should be given the vacant seat, and inasmuch as he is an Oxford graduate, a Fellow of the Royal Society, a member of the Royal College of Surgeons, and that for many years he practised as a dentist, it goes without saying that his appointment would in no way lessen the reputation of such a distinguished body as the General Medical Council.

I have the honour to be your obedient servant,
The DEAN of the
Dental Hospital of London.

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To the Editors of *The Lancet*.

Sirs,—I feel I am asking a great favour to be allowed to add a few words to the leading article on the above subject in your last issue, but our case is urgent, and therefore beg to be allowed to point out its urgency. Everybody must agree that the two classes needing representation are the dentists and the general practitioners, but I venture to think the former have the greater claim, and for the following reasons.

The general practitioner is already ably represented in the person of Dr. Glover, while the dentist has nobody to speak with authority on his behalf. No period of time can add to the dentist's claim, because it is as urgent now as it has always been.

In 1878 when the Dentists Act was passed Sir John Tomes advocated the appointment of a dentist, and yet in twenty years one has not been appointed. At the present time the question of the dental curriculum is under consideration and the advice of a dentist would be of inestimable value in arriving at a conclusion. That one-sixth of the cost of the office is borne by the Dental Fund appears to be an additional reason for such an appointment. A careful search through the Medical and Dental Acts shows that without an additional Act of Parliament the number of the General Medical Council cannot be increased, and it is therefore only possible for a dentist to be nominated by the Crown. It surely is not justice for the Dentists Act to be administered by the General Medical Council when there is nobody on the Council able to speak with authority and experience on behalf of its interpretation. The gentleman suggested by the British Dental Association as the Dental Representative would certainly add lustre to that already distinguished body, the General Medical Council.

I am, Sirs, your obedient servant,
Morton Smale,
April 12, 1898. Dean, Dental Hospital of London.

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From the *Lancet*:—

On Tuesday, April 5th, the General Medical Council by a unanimous vote elected Sir William Turner, M.B.Lond., LL.D. Glasg., D.C.L. Oxford and Durham, F.R.C.S. Eng. and Edin., F.R.S. London and Edinburgh, &c., to be its new President, in succession to the late Sir Richard Quain. Sir William Turner received his medical training at St. Bartholomew's Hospital and graduated M.B. at the University of London in 1857. On the death of Professor Goodsir in 1867, he was elected Professor of Anatomy at the University of Edinburgh. Among many other appointments he has been Examiner in Anatomy at the Universities of Oxford, London, and Durham, Lecturer on Anatomy at the Royal College of Surgeons of England, and President of the Royal College of Surgeons of Edinburgh. For many years past he has been chosen to represent the University of Edinburgh on the General Medical Council. He is the author of an "Atlas of Human Anatomy and Physiology," lectures on "The Comparative Anatomy of the Placenta," and other anatomical works, besides numerous papers on various scientific subjects. In 1886 he received the honour of a knighthood. Sir William Turner brings to bear upon the duties of the new post a sound judgment and wide experience in some part derived from his having been in 1881 a member of the Royal Commission appointed to inquire into the working of the Acts affecting the medical profession.

From the *Yorkshire Herald* :—

The prayer of the dentists that the Crown vacancy in the General Medical Council should be filled by Mr. C. S. Tomes, an Oxford graduate, a Fellow of the Royal Society, and a member of the Royal College of Surgeons, will scarcely fall on deaf ears. Mr. Tomes, who has practised as a dentist for many years, is a man universally respected, and no possible exception can be taken to him on personal grounds. It is also very fairly contended that general practitioners are already adequately represented on the Council. The contention extends to special departments of practice. The dentists ask for the appointment of a medical man who is or was a dentist, because the Dentists Act of 1878 is administered by the General Medical Council, because a special educational curriculum has to be maintained to its satisfaction, because the recognition of a special diploma rests in its hands, because a special register is under its control, because it expends a special dental fund provided by the fees of dentists for registration, and because a sixth of the expenses of the office are defrayed out of the dental fund. These appear to be admirable reasons for the demand.

### To Check Excessive Perspiration of Hands.—

| | | |
|---|---|---|
| R | Tannoform | 1 part. |
| | Powdered orris root | 1 part. |
| | Talcum | 6 parts. |

Tannoform is a combination of tannic acid and formaldehyde.

*Pacific Gazette.*

## OPERATIVE TREATMENT OF CLEFT PALATE.

Mr. Owen in a recent lecture spoke of the operative treatment of cleft palate. After referring to the anatomy and defects in development causing the deformity, and speaking briefly of the effect on the child as regards nursing and nutrition, he passes on to the treatment. He is of the opinion that if the cleft be confined to the soft palate and the infant is in a satisfactory state of health, operation may be done within a few months of birth, but if the hard palate is involved, at least a year should elapse lest the infant should receive a fatal shock from the severe operation. The entire cleft should be closed at the first operation. The preparation of the patient is of great importance. As a rule, the patients are thin and in very poor condition ; the first thing is to enquire into and regulate the food. Fresh milk, modified to resemble human milk, is the best food. In addition, massage with olive oil, and cod liver oil internally are to be given, and proper means taken to have the mouth and pharynx in as healthy a condition as possible. If possible, the operation should be made during fine warm weather. The best position for the operation for the child is upon the back, with the head hanging over the end of the table, so that the blood may pass into the nasopharynx, and out through the mouth and nose ; but if the hæmorrhage is free, the danger of blood passing into the larynx is not entirely done away with. Chloroform is the best anæsthetic, but narcosis should not be too deep. It is well to pass a large looped suture through the tip of the tongue before inserting the gag, as by this means the tongue can be prevented from dropping back and hindering the operation. For the operation, Owen advises old tonsil bistouries, which have been often ground, in preference to the ordinary palate knives, as the latter are thick and clumsy. Tenotomy knives are not well adapted for the purpose. Sponges, which should be firmly fixed on handles, should be about the size of a pigeon's egg. Owen uses silver wire and horse hair for sutures. For the operation Owen proceeds as follows: One side of the soft palate is held and steadied with a pair of long, mouse-toothed forceps, and is then transfixed with the palate knife. By cutting backwards a thin strip is removed through the entire thickness of the soft palate and uvula : then still holding the strip in the forceps, and cutting forwards, along the side of the cleft, vivify the entire edge. The hæmorrhage is arrested, and the next step in the operation is to make a cut about three-quarters of an inch long close to the inner side of the molar teeth of each superior maxilla, passing to the bone, and the muco-periosteum is detached from the hard palate. One blade of a pair of scissors, bent on the flat to almost a right angle, is passed between the detached muco-periosteum, and the under surface of the hard palate; the other through the cleft and over the back of the velum where it springs from the posterior border of the hard palate. The thin layer of mucous membrane which is continued on to the back of the velum from the floor of the nasal fossa, and the aponeurosis of the soft palate, which is inserted into the under surface of the horizontal process of the palate bone thus come between the blades of the scissors. After this cut the whole sheet of muco-periosteum and velum loose. Eight or ten sutures are required, and are inserted in the muco-periosteal flaps, beginning near the incisor teeth. The alveolar incision is to be prolonged backward, if necessary, to reduce the tension on the flaps.

## REFLECTED IRRITATION FROM CARIOUS TEETH.

Sir R. Douglas Powell in a recent Lumleian Lecture gives the following interesting case of reflected irritation from carious teeth.

Having (1) given an absolute diagnosis, and (2) having investigated and corrected the habits of life in whatever respect they may be faulty, we have (3) to ascertain and remove—or, at least, to treat—the exciting cause of cardiac disturbance. These are for the most part reflex, gastric, intestinal, rectal, and renal. I have seen very striking instances of floating kidney attended with great functional disturbance of the heart and sometimes also pulsation of the abdominal aorta. Exostosis, bad teeth and other sources of distal irritability are frequent causes of disturbed cardiac innervation. The following is a simple case in point. A married woman, aged thirty-six years, seen with Mr. Armstrong of Buxton, had for two years suffered from excessive cardiac irregularity and frequent attacks of spasmodic heart pains. She attributed her illness to much previous mental anxiety. Her symptoms had increased the last few months and the cardiac disturbance became so constant that she could neither go into society nor receive friends. There was no valvular disease of the heart and its dimensions were normal, but the action was most irregular and intermittent. Her teeth were extensively decayed, surrounded with tartar, and the gums were unhealthy. She had declined to have them seen to, however, and she was put through a course of Nauheim baths and resistance exercises and her digestion attended to with only slight relief. After the consultation she consented to have her affected teeth removed under gas and ether, which she took well, and from that time her cardiac symptoms have entirely ceased, although she has been exposed to even greater nerve-strain than before. In this case there were no marked dyspeptic signs and the cardiac symptoms seemed to be due chiefly to the reflected irritation of the decayed teeth.

## AN "ORIGINAL COMMUNICATION."

*The Medical Press and Circular* remarks that "Plagiarism" is not yet quite extinct in America, although it is glad to acknowledge that instances of it are much rarer than formerly. Sir William Broadbent is the latest victim. A would-be learned author read a paper on "Angina Pectoris" before an American Medical Society, and sent it to the New York *Medical Record*, in which it appeared on January 8th. It was then discovered that the entire article had been lifted bodily, word for word, even to the punctuation, from Sir William Broadbent's recent work on "Heart Disease" and palmed off by the wretched plagiarist as his own. The brighter side of the picture is seen in the fact that immediately the editor and publishers' attention was called to the imposition practised on them, they made the most handsome *amende* in their power, and probably by the time these lines are in print the author of this literary comedy will find himself outside the Society at which he read this "original communication."

# OPERATIVE METHOD FOR THE RADICAL AND RAPID CURE OF CHRONIC EMPYEMIA OF MAXILLARY SINUS.

Reported by GEORGE RANDORF, Berlin, Germany.

Mr. Luc, after having reminded us that the radical cure of the malady in question is one of the most difficult in rhinology, attributes the frequent failures of the different nasal and buccal operative procedures, to the former, allowing an insufficient means of reaching the seat of disease, and to the latter keeping this in too prolonged communication with tho mouth, thereby exposing it to fresh infection. He has avoided the inconvenience of both these proceedings, and has united their advantages by the following method:

1. Free opening of the maxillary sinus, through incision of the gingival mucous membrane with the bistoury, at fifteen millimeters over the neck of the teeth, stamping of the mucous membrane with a rasp, and resection of the greatest part of the outer wall of the sinus.
2. Careful removal of all fungus in the sinus by means of electric cautery, and cauterizing with a strong solution of chloride of zinc.
3. Establishing, by means of chisel and mallet, of an orifice of communication between the sinus and the nasal cavity at the level of the lower part of the inner wall of the sinus.
4. Introduction of a drainage tube through the artificial opening, the tube is held in the cavity by its widened end, and emerges at the other end, through the nostril.
5 Reunion of the buccal wound by means of fine catgut, after the cavity has been well powdered with iodoform.

The buccal wound is cicatrized after three days, and the seat of the disease thus protected from the danger of buccal infection, is no longer in communication with the outer air except by the nose. During the following days the sinus is kept antiseptic by the drain, by means of injections of etherial iodoform, and irrigations with solutions of formal or boric acid. After a fortnight the drain is withdrawn from the nose by a slight traction, and the cure is complete.

*Items of Interest.*

## THE CARE OF VULCANIZERS.

In spite of the fact that the vulcanizers sold by the reliable manufacturers are submitted to severe tests by hydrostatic pressure—some of them to a pressure of 900 pounds to the inch—explosions have not been unfrequent, generally due to the ignorance of the assistants who watch them, or pretend to watch them, during the process of vulcanization, and not a little to the carelessness of the dentists themselves, who fail to impress upon the students that these little steam boilers require as much attention as boilers of greater capacity. In the first place it does not pay to use cheap vulcanizers any more than cheap German tools and instruments, or the cheaper grades of artificial teeth. In the next place, one should familiarise himself with every part of the machine; realize the importance of keeping it and its belongings clean, and adhere strictly to the rules laid down by the manufacturers. Where thermometers are used, it ought not to be forgotten that too rapid and too great heat at starting, especially if the flame is allowed to surround and reach the top cover, may deceive, and that the the thermometer at 320 deg. may really indicate only the temperature of the cover, and not that of the flask inside. The safety disk used on some modern vulcanizers should not be forced on too tight, as this weakens them. The boiler should on no account ever be perfectly full of water; at least one inch or more of steam room should be left above the water. When the heat is first applied, the valve for the escape of steam should be opened for a few minutes to allow a free escape of steam, as this leaves in the boiler, after the valve is closed, an atmosphere of pure steam, and precaution should be taken not to use any more force in closing the valve than is necessary to make it steam-tight. We are warned, too, not to daub too much black lead or soap-stone powder about the packing. In fact, it is better never to use any if it can be avoided. Oil should never be used, as it rots the rubber packing, and may become gummy and cement the core to the pot, to the damage of the rubber packing. Too frequent use of the black lead and soapstone wears away the screw thread. In heating up, the flame should not be larger than will cover the bottom of the boiler. If students can have these simple instructions put into their brains, it may save some of them from having their heads blown off. If they will not attend to them, they deserve to be killed. Thermometers, in the cities, ought to be relegated to the list of things which are obsolete in the laboratory. Proper gas regulators and steam guages should be used, and dentists owe it to themselves and their students not to neglect every proper precaution in the use of these laboratory demons.

*Indiana Dental Journal.*

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## NEURALGIA TREATED BY THE INJECTION OF OSMIC ACID.

At a clinical meeting of the Medical Society of London, on April 4th, Mr. G. R. Turner showed a case of Neuralgia of the Right Fifth Nerve treated successfully by the Injection of Osmic Acid. The patient, a married woman, aged thirty-three years, had been the subject of neuralgia for two years affecting the right fifth nerve for which she had received all kinds of medical treatment and had had various teeth extracted. The pain originally involved the infra-orbital nerve but had extended to the other divisions of the fifth and been accompanied by discharge from the right nostril. Nothing abnormal could be detected in connexion with the nasal fossæ or the antrum of Highmore. The pain was so excessive that she had threatened to destroy herself. Mr. Turner, at Mr. Albert's suggestion, injected 15 minims of a 1 per cent. aqueous solution of osmic acid into the infra-orbital nerve in January, 1898, following the examples of Neuber, Eulenberg, and Franck. In January, 1898, the injection was passed by means of an ordinary hypodermic syringe into the infra-orbital canal and for a week or ten days afterwards but little improvement followed; indeed, the injection was followed by considerable pain and tenderness. When this passed away the pain did not return and the patient has now for two months been free from her old trouble. It is supposed that the nerve fibres are destroyed by the action of the acid and an aqueous solution is said to be more efficacious than a glycerine one.

Mr. Morgan said that so far as he knew this was the first time that a successful case of this kind had been shown in this country. The method certainly was less formidable than other surgical procedures for dealing with the nerves, Probably the osmic acid had a direct effect on the nerve fibres.

Mr. J. P. Richards thought that it was not likely that the osmic acid had penetrated the tough neurilemma of the nerve and that the relief to pain was due to transitory traumatism.

*Lancet.*

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## THE MEDICAL AND DENTAL REGISTERS.

The Medical Register for 1898, show that the total number of medical practitioners with British qualifications is 34,642. In 1897 the total number was 34,478, being an increase of 877 over the total for 1896. The increase for this year over 1897 is, however, only 164, a most notable decrease. The names removed by death in 1897 were 582, under Section 14 504, under the penal clause 5, while in 1896 the numbers were respectively 532, 25, and 3. The removals under section 14 comprise those renewed for not giving notice of change of address.

The Dentists' Register for 1898, shows that the number of dentists practising in the United Kingdom as Licentiates in Dental Surgery is as follows, compared with the numbers for last year:—Royal College of Surgeons of England, 843 in 1898, and 785 in 1897; Royal College of Surgeons of Edinburgh, 181 in 1898 and 159 in 1897; Faculty of Physicians and Surgeons of Glasgow, 139 in 1898 and 130 in 1897; Royal College of Surgeons in Ireland, 451 in 1898, and 445 in 1897. Total for 1898, 1614. Total for 1897, 1519. Of those in practice before 1878, now practising with additional surgical qualifications, there are 34 for the year 1898, while for 1897 the number was only 30. Of those practising without any additional qualifications there are 3265 for the year 1898, while for the year 1897 the number was 3287. Of foreign dentists the numbers are the same for both years—namely, Doctor of Dental Medicine of the University of Harvard, 9: and Doctor of Dental Surgery of the University of Michigan, 15. It will be seen from these figures that the number of qualified dentists is increasing and the number of unqualified dentists is going down. The total number on the register for 1898 is 4937, while for 1897 it was 4860.

*The Lancet.*

# XEROSTOMIA.

Cases of xerostomia, or "dry mouth," are so rare that every one is of interest. In the *American Journal of Medical Sciences* of March Dr. Thomas Harris of Manchester has published the following case. A woman, aged thirty-one years, had been troubled with dryness of the mouth for three years which followed a slight febrile attack believed to be influenza and was accompanied by swellings behind the angles of the jaw. The tongue was absolutely dry and fissured; the gums and cheeks were dry, but the soft palate though dryish presented a little sticky mucus. There was very perceptible enlargement of both parotid glands but not of the sublingual or submaxillary glands. Drugs (as usual) proved useless; faradaism and massage of the parotids appeared to give temporary relief, but so little that the patient discontinued the treatment. Nearly all the cases of xerostomia have occurred in the female sex and in persons of advanced years. Dr. Harris's patient was therefore exceptionally young. The enlargement of the parotids also is unusual though not without precedent. The pathology of the disease is at present a difficult problem. The view of Mr. Hutchinson, who first described the complaint, is that it is of nervous origin. The influence of the nervous system on the salivary as well as other secretions is well known. Though no doubt correct so far, this explanation requires elucidation. The cause and nature of the nervous derangement are not known. Why the parotid and not any other gland should in some cases be enlarged is obscure. Dr. Harris compares this enlargement specially affecting the parotid glands with the parotitis which Mr. Stephen Paget has shown to be connected with injuries and diseases of the abdomen and pelvis and in some way due to reflex nervous action. Dr. Harris, therefore, very properly concludes that the parotid enlargements in xerostomia are probably produced by the same nervous derangement which caused the arrest of salivary secretion. A remarkable fact, to which Mr. Hutchinson has called attention, is that the failure of salivary secretion does not appear to prejudice the patients' digestion; it simply causes loss of taste and of enjoyment in eating.

*Lancet.*

## AMALGAM OR GOLD?

Dr. G. W. Schwartz says: Considering the manner in which we ordinarily manipulate gold and amalgam, I believe if every dentist were to fill—say twenty teeth—one with amalgam and one with gold alternately, it would be found at the end of five years that the amalgam fillings would be in a better condition than the gold ones. Taking all the cases as they come to us—good, bad, and indifferent—I believe in the hands of the average dentist amalgam would be the best filling material relatively under these conditions excepting the six anterior teeth.

Nothing has been said with reference to what is considered the best quality of filling material, whether to preserve the teeth from decay or to restore contour. I believe more teeth would be saved by the use of cements and gutta-percha—that is, they will prevent recurrence of caries of the teeth better than either gold or amalgam.

Dr. Pruyn says he uses a combination of the two metals, amalgam and gold. In putting a filling in a tooth that is very badly broken down, as the tooth needs saving, Dr. Flagg says that we should use amalgam, and that the less it needs saving, we should use gold.

*Dental Review.*

## THE MICROSCOPE AND THE EARLY STAGES OF CANCER.

That microscopic examination is a valuable aid in the diagnosis of cancer and in doubtful cases a decisive test is generally held. Such is not the view of Mr. Hutchinson. In a recent number of his *Archives of Surgery* he insists that the microscope can give no aid in the recognition of the precancerous stages of cancer. For a long time he has been a warm advocate of early operations and in certain cases of their performance before absolute certainty in diagnosis can be felt. He states that in well-pronounced conditions microscopic examination is not needed and in doubtful ones it cannot assist. Characteristic appearances in the mode of growth and the manner of ulceration are almost always obvious to the instructed eye before the histological conditions have become such that they can be trusted. Thus, according to Mr. Hutchinson, in their early stages cancerous growths are not histologically cancer; chronic inflammatory changes almost invariably precede for a longer or shorter period those which are definitely malignant. A negative result with the microscope often begets a false security and leads to a loss of time which it is impossible to retrieve. Mr. Hutchinson finds that this is constantly occurring; in the previous month he saw four such cases. A man had a large and most characteristic epithelial cancer in his soft palate in a stage almost too late for excision. Eighteen months previously a portion had been cut away which on microscopical examination was pronounced not to be cancer. Mr. Hutchinson asks, Would it not have been better to have removed the whole? In a case of ulcer of the tongue the patient was assured as the result of microscopical examination that he was not suffering from cancer, but two months later the contrary was proved. On one occasion Mr. Hutchinson removed the whole tongue for what he believed to be a broken-down cancerous mass which had suppurated. An experienced pathologist who examined the specimen assured him that there was no cancer but simply an abscess cavity. Within a few months, however, the glands enlarged and in less than a year the patient died. In a case of cancer in the palm of the hand occurring after prolonged administration of arsenic, microscopic sections were made which were examined by various authorities in America, in this country, and on the Continent, with the result that most diverse opinions were given. Several insisted that the disease was syphilis and not cancer. Mr. Hutchinson asserts also that the discrimination between syphilitic changes and inflammatory hypertrophy is also beyond the powers of the microscope; there may be features which may guide the judgment but they are often fallacious, and he who trusts to them will make blunders.—*Lancet.*

## THAT TROUBLESOME NERVE.

By Dr. Snider, of Sidney.

The practice of dentistry has many perplexing questions, and is beset by many annoying criticisms. In the operating department there is no one thing that causes more worry, or tends to make prematurely gray those once raven locks, than that little anatomical mass of odontoblasts, blood-vessels, white and gray matter, commonly known as the "nerve of the tooth." It has been a theme for study for ages past by odontologists, histologists, and pathologists, college professor and student. It seems to be uppermost in the mind of the patient as she sits in the operating chair. It is talked of in the home, at the club, and on the street; in fact, while it cannot strictly be said to be a figure in the public eye, it evidently is very much in the public mouth. It has many peculiarities and queer idiosyncrasies. Its lesions are many, and often difficult of diagnosis and uncertain of prognosis. Those lesions may arise from scores of different causes and the symptoms remain about the same. Just when we make up our mind that a pulp is so protected that it will certainly live, it will surprise us by passing suddenly into the great unknown. And after we have spent days and even weeks in trying to destroy its frail existence we find it still very much alive, and we may quote, "How many now are dead to me that live to others yet," etc. Different from most things according to the laws of nature, death does not always end the trouble with this little disturber of the household peace and professional friendship, but goes right on until it is wiped out of existence, literally torn from its habitation, its house thoroughly cleansed and disinfected, and a new tenant moves in that will be more compatible with the surrounding tissue. In dealing with a dead pulp it often requires more skill and better judgment than with one in its normal condition, for very often we find the mere opening of a pulp-chamber containing a decomposed pulp results in peridental inflammation and perhaps abscess. Nerve broaches here, either smooth or barbed, should be used with great care, even though the apex be not penetrated by the broach; too much cotton wound upon it might act as a piston, thus forcing enough septic matter or driving enough of the gases beyond the apex to irritate the surrounding parts sufficiently to bring about very bad results. I somewhat question the use of hydrogen peroxid or pyrozone in such cases, especially if left plugged too tightly in the cavity; a more mild dressing of some good antiseptic would be preferable. Again, such cases are not always treated a sufficient length of time, and the roots are filled in a partially septic condition, with equally unfavorable results.

There has been a great deal said and much written regarding the filling of root-canals. There are certain rules that must be observed, after which almost any material or method may be employed with a reasonable assurance of success. I have already alluded to the necessity of putting the tooth or root in the very best possible condition. The root-filling should be non-irritating, and one that can be inserted easily and perfectly to the apex. A very valuable quality for a root-filling to possess is ease of removal, in case of pain or inflammation requiring it. I remember reading an article not long since wherein the writer rather criticised the use of any antiseptic agent in a root-filling, claiming that such properties would sooner or later pass away, thus leaving the root in no better condition than though it had not been inserted. I am of the opinion that the use of an antiseptic in a root is of great value in most cases until after the parts about the apex, where the pulp has been dissected or torn away, have returned to their normal condition. Then it makes no particular difference if these properties do disappear, so the filling of the root remains. My method of filling root-canals is with common lime, mixed with water to a pasty condition, with enough carbolic acid and iodoform well mixed with it to give it as much antiseptic and disinfecting qualities as possible. I have used this method for over three years, and find it very satisfactory. As root-canal treatment and filling is not the subject of this paper altogether, we will pass to other conditions of "that troublesome nerve" that may have a claim upon some of our time.

There is no operation in which error can be more easily made than in filling over a live pulp. There are always two points to be attained,—viz., a good, substantial filling, for that is what is expected of us,—and one which will not only guard the pulp against irritation, but will of itself be non-irritating. To be able to excavate and fill a cavity without pain is very desirable, but within a fortnight to have that tooth begin to throb and jump is somewhat embarassing, and results a step backward in our very much desired popular dental education regarding the care of the teeth. No cavity, however small, should be filled without first having a coat of some good resinous varnish or non-conducting tooth-lining. Capping an exposed or a wounded pulp is attended with doubtful results, however practiced. We have no evidence that a wounded pulp possesses recuperating or healing power to any available degree, therefore we should be very careful in our operations, lest in trying to avoid giving our patient pain we throw open the gates to predisposing causes and let in the very object we would shut out.

It is not the purpose of this paper to dwell at length upon the details of everyday scenes or to enlarge upon relations we as dentists bear to the public, nor are we prepared to give to the profession a panacea for all the ills of this troublesome nerve, but we are here to offer what we have gleaned from observation and experience, and to open for discussion a subject, though it be old, that should be of great interest to us all. The writer thinks he has good reason to believe that some conditions connected with operations involving this troublesome member might be bettered ; that popular dental education could be further advanced, and the dread of the dental chair and unfriendly criticisms largely diminished if more thought and more care were given to such operations.

Gold cap-crowns or large pieces of bridge-work are often placed upon stumps or badly decayed teeth with portions of pulp-tissue remaining that should be removed; pivot teeth are often set upon roots from which all the pulp has not been removed, or, if so, the root has not been put in the best possible condition. What is the result? Inflammation, pain, swelling, abscess, and a tirade of abuse heaped upon dentists and dentistry in general. There is only one way out of this trouble,—cataphoric appliances,arsenious acids,nerve broaches, cotton, and medicaments of all kinds, good and bad, are on the market plenty and cheap. Select the instruments and medicine with which you succeed best, and work intelligently.

Is this an age of painless dentistry? I think not. Yet I am glad to note the fact that a great effort is making in that direction. That dentistry is progressing there can be no doubt. Methods, means, and medicaments of no small value are each year brought out that redound to the benefit of both the public and the profession. The teachings of our colleges seem to be keeping pace with the times. The terms have in most cases been lengthened, the number of terms increased, and the faculty groomed and coached until they seem to be almost bubbling over with knowledge. Our dental literature, of which there is a fair supply, is teeming with good things. The signs then certainly point to the time when our fair patients will enter our sanctum arrayed in smiles instead of frowns, and depart with nods and bows instead of groans and tears.

Unfortunately, this dreamed of time has not yet arrived, but we may approximate as nearly as possible that golden age by using to the best advantage methods and means within our grasp.—*Cosmos.*

# Reports of Societies.

## LIVERPOOL DENTAL HOSPITAL STUDENTS' SOCIETY.

A well attended meeting of this Society was held at the Dental Hospital on March 14th, Mr. E. J. M. Phillips, President, in the chair.

Messrs. B. Bennett and A. Drake were elected members.

Several casual communications were made, Mr. J. A. Woods exhibiting Models of a case of complete loss of the hard palate due to syphilitic lesions, and also showing a plate carrying teeth, which he made for the patient.

Mr. Bradburn then read a paper on "Cleft Palate," which is printed on page 385, and a good discussion followed.

Mr. Saul mentioned the surgical operations for the relief of cleft palate, and stated that syphilitic clefts showed a tendency to close up. He said that where the cleft in a congenital case reached the front of the hard palate it was usually between the central and lateral.

Mr. Bryan Wood complimented Mr. Bradburn on the excellent paper he had read, and Mr. Phillips, in commenting on the paper, mentioned the researches of Buckland, which seemed to a certain degree to indicate that, in the lower lower animals at least, congenital cleft palate was due to the manner of feeding.

Mr. Phillips having to leave, Mr. Gillmore, Vice-President, at this stage took the chair.

Mr. H. W. P. Bennette made a few remarks on the development of the hard palate, and was followed by Mr. J. A. Woods, who considered that Mr. Saul was wrong, and that the cleft was more common between the canine and the laterals. He described his experiences in making plates for cleft palates.

Mr. A. P. Nixon found that in his experience the cleft was more usually between the central and lateral, and cited Albrecht in support of this. He also treated the development of the hard palate at some length.

Mr. Gilmore believed that syphilitic clefts did not close up, but rather the reverse, the patient often coming to the dentist and pulling a piece of cork out of the hole.

Mr. Bradburn having replied, and a vote of thanks having been passed to him for his paper, the meeting adjourned.

# Dental News.

The new District Council of Willesden has a large proportion of professional men among its twenty-one members. There are three medical men and two Dental Surgeons—the latter being Mr. John Trude Fripp, L.D.S.Ed. & I., who was returned unopposed for the Harlesden Ward, and Mr. Edgar C. Fisk, L.D.S.Eng., who was returned at the head of the poll in the Kilburn Ward.

## APPOINTMENT.

Mr. Chas. L. Routledge, L.D.S., R.C.S.Edin., has been appointed to the Senior Staff of the Dental Hospital, Newcastle-on-Tyne, vice Mr. J.C. S. Harper, deceased.

Dr. Teague suggests in the *American Dental Weekly* a method of crowning very hollow roots by use of a soft wooden peg the shape and size of metal pivot in crown to be inserted. The root is roughed where there is least fear of perforating it; the peg is inserted in root, and amalgam packed around it to the margin of gum. After the amalgam is set the peg is drilled out and the crown set.

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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# THE USE OF GUTTA PERCHA IN CONSERVATIVE DENTISTRY.*

By William Rushton, L.D.S. Eng.

Mr. President and Gentlemen,—I am here in response to the request of our Secretary that I would read a paper before this Society. The subject I have chosen is "The Use of Gutta Percha in Conservative Dentistry." It is a subject which has been of considerable interest to me for some time, as I felt that such an excellent tooth-saving material as gutta percha was worthy of more attention than it had received in the past. I also wished to fathom, if possible, the different characteristics and composition of the various preparations offered for our use, and find out in what particulars they differed from each other, and the cause of such difference. Furthermore, I have adapted a method already known to science, for eliminating the undesirable constituents of gutta percha and in making what I venture to think is a filling material of greater stability and durability than any with which I am acquainted. This method I will describe in due course.

Gutta percha probably consists of a hydrocarbon (pure gutta) having the formula $C_{10}H_{16}$; albane, a white resin, $C_{10}H_{16}O$; fluavile, a yellow resin, $C_{40}H_{64}O_3$; and a variable component named guttane. You will notice that the resins have practically the same chemical formula as pure gutta *plus* oxygen. In the crude state it also contains foreign matter such as stones, sawdust, bark, sago-flour, and other substances, owing to impurities entering while it is being collected, or due to wilful adulteration. The factor which makes gutta percha so valuable in commerce is the hydrocarbon "gutta," which, when pure, is a milk-white substance, becoming soft and plastic on heating, and hard and tenacious on cooling, without being the least brittle. The resins are accessory compounds due to oxidation, and they have a decidedly detrimental effect when they exist in too large proportions. It also contains a variable quantity of water.

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* Read before the Odontological Society of Great Britain

Gutta percha is chiefly obtained from the tree *Isonandra Gutta* which is distributed over a well-defined area including part of Borneo and the Malay Archipelago, but no less than thirty names have been mentioned of the different plants from which supplies have been obtained, though probably some of these names are synonymous. The quality and quantity of the yield also varies very much, depending upon the age and condition of the tree, the manner in which it is bled, and the season. The best flow is undoubtedly obtained from the felled tree, but this extravagant plan of obtaining the juice is now being abandoned on account of the increasing scarcity of the plant, and bleeding is being resorted to. The yield is, of course, less, but the vitality of the plant is preserved. When we consider that an average tree yields, when felled, about two and a half pounds of gutta percha, and that this fetches, say, 3s. 6d. per pound, it is not surprising that considerable adulteration takes place, not only by the substances already mentioned as being found in fairly good samples, but by what is more deleterious, the juices of other plants.

When the juice is drawn off it loses 35 per cent. of its weight after the first six months. If it is not boiled within a reasonable time oxidation rapidly sets in, and many good samples have been spoilt from this cause. It would seem that, other things being equal, the smaller the percentage of resins (which, as we have seen, are oxidised gutta) the better. Specimens differ very much, the percentage of gutta varying from 31·6 to 84·3 per cent.; resins from 10·7 to 71·5 per per cent.; dirt from 1·8 to 5·1 per cent., and water from 1 to 13·4 per cent. Specimens also vary in molecular construction, therefore their physical and mechanical properties and their durability differ very much. For example, in a sample containing 60 per cent. of resin the softening point was 107·6° F., while that of a sample containing 2½ per cent of resin the softening point was 131°F. The breaking strain of a sample containing 55 per cent. of resin was 770 lbs. to the square inch, while when the resin was extracted the breaking strain was nearly double that amount. A medium quality sample cleaned in the ordinary way gave the following results with and without resin:—With resin, softening took place at 137·8°, without resin, 195·9°. The time taken to again become hard was, with resin, seventeen minutes, and without resin, three-quarters of a minute. The difference in the tensile strength was five times as powerful as it was before the resin was extracted.* These facts seem to prove conclusively that the larger the proportion of pure gutta in the sample, the more valuable are its properties. The appearance of various samples also differs considerably, varying from brown to white. As a rule the whiter the crude gutta percha the more brittle it appears to be.

Gutta percha is insoluble in water, alcohol and dilute acids, and alkalies. It is soluble in chloroform, bisulphide of carbon, light petroleum, ether, and partially in essential oils. Purifying by solution, straining and subsequent evaporation has been abandoned in commerce, because the molecular structure is affected and the tough fibrous character of the substance is partly lost. The best gutta percha is from superior samples obtained directly from the tree. A good sample should be as hard as wood, only just receiving the impression of the thumb nail; when moulded or rolled into sheets it should assume a tough fibrous character. When imported into this country it is in blocks more or less impure. The blocks are first sliced by machinery, and then the residue is placed in troughs of water heated by steam. As soon as the gutta percha becomes soft it is taken out in baskets and placed in a toothed machine which tears it into fragments. These fragments fall into water; the gutta percha floats and impurities sink. The loss or waste during cleaning is sometimes as much as 50 per cent. The mass is then taken out, washed with cold water and dried. It is then heated by steam until soft, and kneaded by machinery into a homogeneous reddish-brown mass. When in this machine various substances can be introduced to vary the hardness, colour or density of the mass. By this means a soft, elastic, or hard horny substance can be produced. When sufficiently masticated the mass is placed while warm between steel cylinders and rolled to the required thickness.

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* E. F. A. Obach, Cantor Lecture, *Journal of the Society of Arts* December, 1897, *et seq.*

The earliest mention in England of gutta percha occurs in the catalogue of the Museum collected together by the Tradescants, and which afterwards became the nucleus of the famous Ashmolean Museum at Oxford. The entry in the catalogue bears the date 1656, and is as follows:—"The plyable mazer wood, being warmed, will work to any form." "Mazer" is to-day one of the vernacular names of gutta percha, and there is little doubt it was the substance mentioned in the catalogue. Unfortunately the specimen appears to have been lost, as it now can neither be found at the Ashmolean Museum nor at the Botanic Garden at Oxford.

In 1822, Dr. Montgomerie, a surgeon in the service of the Honourable East India Company, having observed gutta percha in Singapore in the form of whips and other objects, made some experiments, and recommended the substance to the notice of the Medical Board in Calcutta as useful for making splints and other surgical apparatus. He sent specimens to the Society of Arts, which body, rightly foreseeing the immense utility of the substance, presented Dr. Montgomerie with its gold medal on his return to England.

According to Professor Foster Flagg,* gutta percha was first suggested as a temporary stopping for frail teeth some forty-five years ago. It is certainly not mentioned in the "Course of Lectures on Dental Physiology and Surgery," by John Tomes, published fifty years ago. There is, however, a paragraph in the first edition of his "Dental Surgery," published in 1859, devoted to it. It is there mentioned as "a temporary filling capable of lasting for some months." The first material used was the brown natural gutta percha, the colour of which was objectionable. Then Dr. Hill introduced his stopping in America, and in 1857, Mr. Jacob, in a paper read before this Society, described how he manufactured his gutta percha stopping.† Various preparations have since been placed before the profession, and I propose to deal briefly with the composition and characteristics of some which I have used in practice and upon which, in conjunction with Mr. Ord, the chemist, I have conducted experiments. The prepared gutta percha I have examined are the so-called base-plates made by Messrs. S. S. White and the Gutta Percha Company, Hill's, Jacob's, George Pedley's, and Flagg's High Heat gutta perchas. They are all gutta percha mixed with some mineral constituent to give colour and hardness. Red base-plates contain oxide of zinc and vermilion, Flagg's contains oxide of zinc, Hill's contains oxide of zinc and lime, Jacob's contains silica (one specimen also contains oxide of zinc), Pedley's contains oxide of zinc and kaolin.

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* "Plastic Fillings," by J. Foster Flagg.

† Transactions of the Odontological Society, vol. i.

When incinerated in a capsule and the residue weighed, the following approximate results are obtained :—

| | Per cent. of ash left. |
|---|---|
| S. S. White's Red base-plate ... ... ... | 75 |
| Gutta Percha Co.'s impression base-plate ... | 55 |
| Flagg's High Heat ... ... ... ... | 82·5 |
| (According to his formula it is 85 per cent.) | |
| Hill's ... ... ... ... ... ... | 80 to 83·4 |
| Jacob's ... ... ... ... | 20, 15, 33·4 and 57·5 |
| (According to his formula it is 20 per cent.) | |
| Pedley's ... ... ... ... ... ... | 80 |
| (According to his formula it is 77·8 per cent.) | |

Pure gutta percha only leaves ½ to 1 per cent. of ash, and has been ignored in these experiments, which do not pretend to be anything more than fairly approximate. We see therefore that the composition of these materials varies considerably. Jacob's contains the least proportion of foreign admixture when made according to the published formula ; Flagg's, Pedley's and Hill's contain about four times as much, and they again vary in their characters, as the two former set much more quickly than Hill's, and are more durable and tougher.

Let us first examine Jacob's stopping. Jacob prepared his gutta percha by pulling the crude material to pieces in hot water until all dirt and accidental impurities were removed. He then dried it and moulded it into little balls which were enclosed in calico and suspended in chloroform, the object of the calico being to retain most of the colouring matter while allowing the chloroform to dissolve the gutta percha. When this was effected the solution was placed in a bottle having a small aperture at the lower end closed with a plug. A little water was then added to the solution and shaken ; the water precipitated a small quantity of the gutta percha, which rose to the top carrying any foreign matte with it, while the clear liquid was then drawn off from the bottom. From this liquid the gutta percha was recovered by distilling off the chloroform. The residue was then dried, and after being rolled out on a warm slab was incorporated with 20 per cent. of fine white silica prepared from the fluoride of silicon.

The method of preparing Jacob's stopping is a good one, as time has shown, and by the reputation that this stopping has acquired. But it is open to criticism on two counts: firstly that the gutta percha is purified by solution and recovered by evaporation, which, according to Obach, alters the molecular structure; and secondly, what is far more important, the resins are not got rid of but still remain. If an excellent sample of gutta percha is used, a very good stopping is the result, but, as we have seen, excellent samples seem to be getting rarer, and the reason seems to be that they contain an increased proportion of resin to gutta. Mr. Ash, in writing to me on the subject says, "We are not acquainted with any article that varies so greatly in its raw state as crude G. P."

Before proceeding any further, I wish to say a few words about the causes which cause gutta percha to deteriorate. The two most important factors are air and light, especially light. When gutta percha is exposed to a continuous current of oxygen it becomes slowly oxidised on the surface and gradually becomes resinified and brittle; ozone, curiously enough, has no such action. This takes place to a greater or less extent when exposed to the air, and still more when exposed to air and light. But this resinification differs very much in various samples, the better class ones seeming to resist this change much better than inferior specimens. For instance, there are two specimens of gutta percha in Kew Museum, which were sent to Sir William Hooker in 1846 and 1847, which are still good. They have been kept in a dark cupboard to which the air had free access. Two specimens taken from one mass, one exposed to light and air and the other enclosed in tin-foil, were kept for a number of years. The exposed sample was found resinified on the surface, while the protected sample was unchanged. Mr. Ash says, "It is difficult to fix a time when deterioration takes place in gutta percha. Some lots oxidize much more quickly than others; some will keep good for eight or ten years, others will perish in two or three years." This no doubt is due to the quality of the crude article; the more resin it contains to start with, the greater the probability of further resinification taking place.

Having now explained that resinification and deterioration are synonymous terms (nearly synonymous but not quite, as the quality of the gutta in the sample must be taken into consideration), I shall now show the results of our experiments on five samples of Jacob's stopping.

| | Percentage of Ash when Incinerated | Percentage of Resin in GuttaPercha present | Remarks |
|---|---|---|---|
| (*a*) Oxidised No. 2 ... | 20 | 53·3 | Useless. Brittle when cold, pasty and sticky when heated; hardens slowly. |
| (*b*) Sample 7 to 10 years old, No. 1 ... ... | 20 | 40·1 | Very fair stopping. |
| (*c*) Sample dated 7/2/96, No. 1 ... ... ... | 15 | 55 | Poor stopping; hardens slowly. |
| (*d*) Sample dated 9/10/95, No. 2 ... ... ... | 33·4 | 40 6 | Poor stopping; sticky when heated. |
| (*e*) Sample, recent, No. 1 | 57·5 | 26·3 | Very fair, but character of stopping different; hardens quickly. |

The difference between No. 1 and No. 2 stopping is merely one of colour.

It will be seen that the character of the stopping varies to a great extent with the amount of resin present, though not altogether. For instance, (*c*) is a better stopping than (*a*) although it contains a greater percentage of resin, and (*b*) is better than (*d*) although they contain the same percentage. This is most probably due to the quality af the gutta in the crude article, which varies somewhat. The amount of silica present also modifies the character. The sample (*b*) is remarkable as being in very fair condition after many years. This is no doubt due to its having been made from an excellent gutta percha and to its having been kept in a dark cupboard. The value ot stoppings of this class depends on their toughness. The objectionable feature is that they are apt to swell in the cavity after a time. The sample (*e*) is entirely different from Jacob's formula, and closely approaches the character of Flagg's and Pedley's in having a large admixture of mineral constituent. It also differs from the other samples of Jacob's in containing oxide of zinc.

I shall now turn to stoppings of a different character in which the percentage of gutta percha is small, in fact only sufficient to act as an agent to bind particles of mineral constituent together.

The first I shall mention is Flagg's High Heat. This is a mixture of 85 per cent. of oxide of zinc with 15 per cent. of gutta percha. The high temperature to which it must be heated is an objection to its use in teeth which are sensitive to thermal changes. It also sets very rapidly. It does not expand and has good lasting qualities. Toughness is, however sacrificed by the large admixture of mineral matter, as can be seen by biting.

A very similar preparation is that made from the formula of Mr. George Pedley, which contains about 80 per cent. of mineral matter, oxide of zinc and china clay. It is also a very good stopping of this class, slightly tougher and not so hard as Flagg's. Mr. Pedley says in his book* that gutta percha tissue answers well for making it; but theoretically, as tissue presents such a large surface to atmospheric influence, I should think it was inadvisable. As a matter of fact, Mr. Pedley tells me he does not use the tissue himself, but the gutta percha from which the tissue is made. Both these also differ from Jacob's in that the gutta percha is not purified by solution. The powders are gradually added, care being taken not to over-heat the mass. Pedley's preparation is rather too white in colour.

The next stopping we shall consider is Hill's. This contains about as much mineral matter as Flagg's High Heat, but is an entirely different stopping. It softens at a low temperature, remains soft a considerable time, has very little toughness, and wears away quickly. It can only be considered a temporary stopping, in spite of the assertion of its inventor that it was destined to replace gold as a filling material. How it is prepared I cannot say, but the admixture of its constituents oxide of zinc and lime in various proportions to gutta percha, failed to make a preparation similar to Hill's. It may contain some resinous material which reduces its softening point and retards its setting.

Old S. S. White's base-plate gutta percha makes a very good filling. I cannot speak of any recent manufacture, for I have not used any. I used an old sample which belonged to the late Mr. Merryweather, and I was very sorry when it was all gone. I have procured some from the Dental Company which they have had many years in stock, and it works well. I at one time thought that gutta percha improved by keeping (and it possibly may for a while by getting rid of some water), but I now think that the toughness must be due to the good gutta percha of which they were made. The impression gutta percha sent out by Ash's and the Dental Company contains 20 per cent. less oxide of zinc and is much softer than the S. S. White's, and is too soft and sponge-like to make good stoppings, or to work nicely. Their colour makes these preparations useless for conspicuous cavities.

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* "Diseases of Children's Teeth," by R. Denison Pedley.

The characteristics of a good gutta percha stopping, in my opinion, are as follows : firstly, it should be tough, so tough that the canine teeth have considerable difficulty in biting through it ; it should soften at not higher than 175° F. ; it should set in thirty to forty-five seconds. When softened over a flame sufficiently to work it should not feel sticky to the fingers, and until it sets should feel resilient and not pasty when pressed. It should be of a suitable colour.

As regards the preservation of the stopping, it should be kept in a receptacle impervious to light, it should have as small a surface exposed as possible, therefore pellets are objectionable. Most probably sticks wrapped in tin-foil and kept in a box would last indefinitely, pieces being cut off as required.

I shall now give what I think is an improvement on any of the foregoing. Its utility depends upon the elimination of what has been shown to be deleterious in gutta percha, namely, the resin. The resins are soluble in spirit, pure gutta is not ; therefore if we dissolve gutta percha in any of its solvents, and treat the solution with spirit we precipitate pure gutta and get rid of the resin. Pure gutta contains all the good qualities of good gutta percha in an enhanced degree, and therefore if we can utilize this substance to the best advantage we are getting the most we can out of gutta percha. The two qualities in a gutta percha stopping ought to be toughness and hardness. The gutta percha gives us toughness, but it swells ; the mineral admixture gives us hardness, but it tends in excess to eliminate the toughness, which, in my opinion, is the best quality of the stopping. Pure gutta is so extremely tough and tenacious that it will bear a considerable admixture of mineral matter, which hardens it and controls the tendency to swell in the mouth, without detriment to the stopping. It is also harder than gutta percha to start with, so that by using the following formula one gets what is, in my opinion, the best of both qualities.

| | |
|---|---|
| Pure Gutta ... ... | 50 parts |
| Finely Levigated Silica ... | 30 „ |
| Oxide of Zinc ... ... | 20 „ |

The gutta should be gradually heated and the powders added in small quantities at a time. I find the best way to use it is to gently warm a portion sufficient to fill the cavity over a flame, then roll it in the fingers to an elongated shape the diameter of which is less than that of the cavity. Then heat a round-headed burnisher and press it to one end of the cylinder, which will adhere to it. Then gently heat the stopping over the flame, taking care to heat the burnisher as little as possible; carry to the cavity and press home. The round head of the burnisher may easily be detached by rotation. If adhesion to the cavity wall be desired, the stopping must be heated to a higher temperature, or dipped in eucalpytus oil, and the oil then volatilised by heat, leaving a sticky surface. In my opinion gutta percha stoppings should not be trusted to remain by adhesion but by judicious undercuts. To prevent dragging when the filling is being trimmed off, the trimmer should be fairly hot, the filling being trimmed off towards the cavity-wall. Accurate gauging of the amount of stopping to be used saves much trouble. Oil of eucalpytus or chloroform may be used if necessary to trim the edges.

As I have only recently taken up the subject, I am sorry I cannot report the behaviour of "gutta" stopping in the mouth. All I can say is that it works well, and I feel very sanguine about its wearing qualities. The objection to it is that the preparation of the gutta is a tedious and somewhat expensive process, I believe.

Gutta percha stoppings in actual practice are divided into temporary and permanent. The former should be easily introduced without pressure, if necessary—easily removable, adhesive, and sufficiently durable to last a few weeks. This variety is useful for filling a partially prepared cavity, or for sealing dressings and drugs in cavities for short periods. Gilbert's preparation is a fair sample of this class, though in my opinion it sets too rapidly. Pedley gives a formula in his book.*

The word "permanent" as applied to gutta percha has sometimes been objected to, and to a certain extent justly so; but as far as my experience goes, in certain situations it is probably the most permanent filling we can use. Every filling material has its special advantages and special drawbacks, all of which I shall not stop to enter into. The drawbacks of gutta percha are its inability to maintain much contour; some makes swell in the mouth and overlap the cervical edge, but wear well; some do not swell but wear away. Its great advantage, however, is that it is a splendid tooth saver. I cannot remember having seen a cavity in which a gutta percha stopping was placed—even though much worn down—in which, or round the edges of which, fresh caries had commenced. I know of no other filling material to equal it in this respect, excepting perhaps tin-foil. Added to this it keeps a fair and inconspicuous colour, it does not discolour the tooth, it is an excellent non-conductor, it can be easily worked, it can be prepared in any shade of colour, and it is easily tolerated. That it renders the dentine under it more sensitive, as has been stated, I do not find to be the case.

We are all very glad when a patient presents himself with hard teeth capable of receiving a hard filling. But these cases seem to be getting fewer, and the teeth we are called upon so often to treat are the soft bluish-white variety, the carious dentine of which is like sponge, and the enamel like egg-shell. How often do we see fresh caries starting on the margins of cohesive gold fillings in teeth of this nature, especially in the mouths of young people. Amalgams are also at fault, although Professor Black holds out some hope. His formula has yet to be tested thoroughly in the only laboratory worth considering, namely, the mouth. It is well known that at certain periods of life the teeth decay much more quickly than at others. I believe a judicious use of gutta percha in the mouths of young people of the aforesaid type who can be seen regularly, is good practice, besides which it can be allowed to exercise a separating action preparatory to filling with metal. Suffering is also reduced to a minimum at an age when it is badly borne. In my opinion gutta percha is the conservative filling *par excellence* for weak teeth, temporary teeth, and senile teeth, either used alone or in conjunction with other fillings. In temporary teeth it is easily inserted for the child, durable, well tolerated and easily removable. In the approximal cavities of temporary molars one stopping of permanent gutta percha between the two teeth is of the greatest service, and is more durable than amalgam under similar conditions. The reason is that the amalgam, being absolutely rigid, permits of no play without loosening. Gutta percha, on the other hand, does not become loose, and although it may wear down more or less the teeth are preserved. In the rapid decay of the teeth of elderly persons, gutta percha may be used with the greatest advantage, and bears out its tooth-saving qualities to the full, while the tax upon its wearing qualities is not so great owing to the muscles being feebler.

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* "Diseases of Children's Teeth.

The most dangerous spot for a filling to fail is the cervical edge, because it is nearest the pulp, it is difficult of observation, it is protected from the force of mastication, and consequently decay may proceed painlessly to dangerous depths. It is also the most usual point of failure because it is often the most difficult point to fill and trim off, and when under the gum it has no protecting enamel. In such cavities gutta percha is a permanent filling. It is well tolerated, easily inserted, easily removed if devitalisation is necessary, and absolutely preservative. We all know it is excellent practice to protect the cervical edge with gutta percha in cavities at or under the gum in which we place oxy-phosphates. I have lately been trying the same thing with amalgams, being careful to place a thinner film of gutta percha, and allowing part of the amalgam to rest on the dentine. I find Flagg mentions the same practice.* I think the danger of the gutta percha being pressed out a remote one even of the amalgam rested solely on it, but that depends on the gutta percha used and on the force of mastication.

Gutta percha as a material for impression taking does not lie within the scope of this paper. It is useful as a root canal filling and for cementing crowns and pivots. I have found the best material for the latter operation is the impression gutta percha, as it is very tenacious and fairly soft, remaining so for a considerable time. For cementing all-gold crowns I have found a useful plan is to place some impression gutta percha in the crown with a few drops of eucalyptus oil, heat and stir gently until some of the oil is driven off and a sticky viscid mass is left; the crown is then pressed into place. Objection has been taken to the use of gutta percha for this purpose as the odour of the crown when removed is very unpleasant, but of this I have had no experience. I can only say that I have found that any stopping, after being in the mouth a long time, evolves an unpleasant odour when heated,

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* "Plastic Fillings," by J. Foster Flagg.

I must now bring my remarks to a close, merely emphasizing the fact that where gutta percha stoppings vary so much in their composition, and where the crude gutta percha varies so much in itself, any attempt to standardise the preparation is a move in the right direction. This, I think, has been done by the method I have described, and that a stable preparation containing the good qualities of gutta percha without its bad ones can now be prepared.

I wish to record my grateful thanks to Messrs. Ash, the Dental Manufacturing Company, Mr. Pedley, and Dr. Obach, for specimens and information supplied, and also to Mr. Ord for the skill and patience with which he has conducted the experiments.

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## PORCELAIN WORK.*

By Frederick J. Turnbull, L.R.C.P. & S.E., L.D.S.

Mr. President and Gentlemen,—The title "Porcelain Work," is a very comprehensive one, and were I to attempt to-night to go minutely into all the details of this most interesting section of mechanical dentistry, time would not permit me to cover much ground. I do not intend, therefore, to go into the history of Porcelain Work, but rather to devote the time at my disposal, to showing and explaining some of the more common purposes for which a small furnace such as Dall's Bridge, Ash's, Downie's, or other similar furnace may be used.

Should I, in the course of my remarks, explain methods which to some of you may be familiar, and seemingly too simple for comment, I trust you will excuse me on the ground that this is a Students' Society, and that many of the members may not have had the opportunity of seeing this department of mechanical work demonstrated.

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* Read before the Edinburgh Students' Society.

The smaller kinds of Porcelain Work may be considered under the following heads, viz. :—

1. Gum Blocks.
2. Pivots and Crowns.
3. Bridge Work.
4. The partial reparation of individual teeth.
5. Painting or tinting of porcelain teeth.

## I. GUM BLOCKS.

No effort should be spared to obtain the most artistic results in mechanical dentistry, and as porcelain gum blocks present a much more natural appearance than vulcanite gums, they are finding much favour in the profession, and are equally appreciated by patients. As one cannot have a selection of manufactured blocks to meet all requirements, a small furnace becomes indispensable.

*Blocks* can be made with or without a platinum base, and as is usually the case, the more expensive method is the better.

*Platinum bases.* One can either burnish platinum foil on the model, or strike up a thin platinum plate which may or may not be soldered with stays or supports to the teeth.

### (*a*) *Platinum Base Plate.*

This is struck up in the usual way, using ordinary platinum plate which may either be perforated or not.

(I may here mention that a new platinum alloy having a percentage of copper in it has been introduced lately by Mr. Gartrell, and with this he uses a special solder. The advantage claimed for this alloy is, that the porcelain adheres more readily to it, it also has the merit of being easily wrought.)

Having fitted the plate, we place it on the model and set up the teeth, making a gum the desired size, and in conformity to the gum over the natural teeth. A face bite is taken and the block is then removed and invested in plaster. The teeth are now soldered to each other and to the base with pure gold—not gold solder as the alloy in it might destroy the colour of the porcelain.

In soldering one must not allow the gold to flow over the surface of the platinum, as this is apt to prevent the porcelain from adhering to the plate. To assist the adhesion one may apply a slight coating of gum enamel over the platinum, as the enamel fuses before the body, and so retains the latter in position.

The block is now replaced on the model and one ascertains that it is fitting accurately. A small piece of tissue paper is moistened and adapted to the inner surface of the face bite, which is then replaced in position.

The body is now packed in between the teeth from behind. This must be done carefully, so that it will be equally distributed, with no "blows" in it. After this has dried the face bite is removed and the paper peeled off, when any defect in the body can be corrected. The block is now ready for *Firing,* which must be done carefully. The block must be heated up slowly, the slower the better, especially if there be much metal in it. This also applies to the cooling. After the block has had its first firing it is taken out of the furnace, and any defect, such as cracks or blows may be remedied. It now receives its second firing, after which if quite satisfactory, it will get its coat of enamel, but usually before this is done it will require some trimming round the edges or grinding on the surface to bring out more prominently the markings of the gum.

The greatest cleanliness is necessary in porcelain work, and after grinding it is better to boil the block in weak acid and also to fire it to a dull red heat in order to burn off any foreign matter before adding more body or enamel.

In Ash's box of high fusing materials, two shades of enamels are provided, dark and light, and by a judicious mixing of these the desired shade can usually be got. In getting the requisite shade of gum however, the colour of the body underneath has to be taken into account as well as the thickness of enamel applied.

*A whitish body* underneath the enamel gives a rose pink colour.

*A bluish body* gives that blue colour usually associated with chronically inflamed gums.

*A yellowish body* I consider gives the best result of all, as it produces that red-pink appearance which a healthy gum ought to exhibit.

I think that a more yellowish body might be included with advantage in the boxes as supplied by Messrs. Ash & Sons.

(*b*) *Platinum foil.*

A block prepared with platinum foil base (instead of plate) is manufactured in the same way, but if no soldering or stays have neen used, it requires to be invested in pounded fire-brick or stucco, or silver sand and stucco, in order to retain the teeth and foil in their respective positions.

(*c*) *Without plate or foil.*

As I already indicated one can do without platinum base or supports. In this case make the blocks with wax, then remove and invest it, leaving the labial aspect exposed. Clear away what wax you can before scalding, and then build up the body to the desired shape, keeping in view that the markings must always be exaggerated to allow for shrinkage. Whenever one fires an invested piece of porcelain work, one always has to contend with air blows which are often a great source of annoyance, and give very considerable trouble. I may say that instead of using the face bite and tissue paper in the first two methods, the teeth may be supported from behind with stucco (if not already soldered), and the body packed while on the model.

When firing the body some dentists embed the piece in silex which prevents the gum from losing its shape to any great extent, but when this is done ths teeth are apt to lose their gloss and so darken in time by foreign substances adhering to the dim surface. Needless to say when firing the enamel one must never cover it with silex.

With a furnace such as Dall's Bridge furnace, the largest block which can be fired is one of six teeth. Even this is rather large, as the body or enamel at the inner end of the muffle fuses much sooner than that nearer the door. In this way one has to fire the one end of the block, let it partially cool, and then turn it and fire the other end. This may have to be repeated several times before a satisfactory result can be obtained, and naturally, a great deal of time is wasted. I should, therefore, advise you not to attempt anything larger than a four tooth block with this furnace. A block with three or four teeth is, as a matter of fact, as large as one requires to make. Even a sectional gum block case could be constructed in this way.

What might be called the smallest form of a gum block is that now shown you. It is useful in cases where a single tooth has been extracted, and where by fusing some enamel over the base of the tooth the unsightly and artificial appearance, which a long tooth gives where gum ought to be, is thus avoided.

## II. Pivots and Crowns.

The all-porcelain crown has now quite superseded the old fashioned metal-backed pivot. In fact, I would never think of making one of the latter now unless the bite demanded it.

There are two principal varieties of porcelain crowns, that with a collar, and that without.

(*a*) The former is of course the more thorough of the two. The surface of the root is ground flat, and a platinum band is fitted which is then made into a cap. The artificial tooth is set to this and a platinum pin is prepared and the pins of the tooth are bent over to secure it. A hole is pierced in the top over the nerve canal, and the tooth and pin are placed in position and fixed with wax, invested, and soldered with pure gold. The body is then packed on as dry as can be conveniently worked and it is then fixed. The platinum band can be covered if desired either with body or enamel.

(*b*) *The collarless pivot.*

The root in this case is prepared differently in order to prevent the pivot from rotating. It is bevelled in front and hollowed behind, which gives it a somewhat saddle-shaped appearance. A piece of foil then burnished over the root and the tooth and pin are placed in position. It is then invested, and may be soldered or not.

The porcelain is quite strong enough to retain the tooth and pin in position without soldering, if the pins of the tooth are bent, but if they are soldered together the body can be fixed without being again invested. The foil may be perforated and painted with enamel to assist the adhesion to the body. Examples of these two forms of crowns are now passed round the meeting to illustrate the two methods of preparing the roots and of adapting the crowns to them.

These two forms of crowns may be used for all the teeth, but are, in my opinion, more suitable for incisors, canines, and bicuspids. The strain of mastication is so great in the molar region, that I think metal caps are much stronger for these teeth. The porcelain molars might fracture when biting something hard, or even by striking against the opposing teeth during mastication.

For bicuspids which are more seen, the porcelain crowns can be used with comparative safety. For such crowns one can vary the kind of tooth used according to circumstances. The diatoric can be readily adapted, or an ordinary bicuspid and in cases where a low inner cusp is required a canine or half tooth may be used.

### III. BRIDGE WORK

Has been described as a united assemblage of pivots and crowns.

There may be two or more teeth, according to the number of spaces to be bridged over.

The simplest form of bridge-work is that of a pivot or crown supporting one extended tooth.

More complex forms of bridges carrying one or more intermediate and extended teeth are also required to be made.

The pivots or crowns for the roots are prepared in the usual way, either with or without collars. Supports must be used of iridio-platinum, and the body and gum built up to give as natural appearance to the mouth as possible.

I have said little about bridge work, not because it is unimportant, but having previously detailed the methods of pivots and crowns and also the fusing of porcelain, each case must be treated in the manner which best commends itself to the operator.

### IV. THE PARTIAL REPARATION OF INDIVIDUAL TEETH

This includes (*a*) *The attaching of corners or tips*, and (*b*) *Inlays.*

(*a*) Tips may be required in cases where there is sufficient tooth left to obviate the necessity of making an entire crown.

To make an incisive tip, take the corresponding portion of a suitable porcelain tooth, and fit it to the natural tooth. Grooves are then cut in the back of the porcelain tooth, and platinum pins are fixed in position and fixed.

Drill corresponding holes in the natural tooth, taking care to avoid too close proximity to the pulp. Burnish foil over the natural tooth, and plant the tip in position, then build up to shape with body and fix. When this is done, strip off the platinum foil, finely adjust, and fix with cement.

### (b) *Porcelain Inlays*

Are useful when one desires to avoid shewing gold, and at the same time to have a filling of a durable nature. The specimen now passed round is that of a canine having a labial inlay made with Ash's low fusing body and fixed with cement.

In preparing the cavity one must obtain a well defined edge with no undercuts. Then take a piece of thin platinum foil, a little larger than the cavity, and adapt it into position, first using the tweezers and a pledget of cotton wool, then burnishing, and lastly, if in an exposed place, with the tip of the finger press over the whole of it. This prevents tilting of the platinum, and so gives a clear adaptation to the edges of the cavity. Next fill up with low fusing body. When this is fired it shrinks considerably, and more may have to be added. If it is right, the platinum must be carefully stripped off and the inner surface roughened, the edges being trimmed if necessary. The cavity is then slightly undercut, and the inlay fixed with cement, using a dark or light shade according to what is required to match the natural tooth.

### V. *Tinting mineral teeth.*

This is often very useful in assisting us to more thoroughly match teeth. The dental manufacturing companies have recently introduced and are selling hand painted teeth, more often spoken of as "smoker's teeth." These teeth are painted before the original firing.

But to enable us to make a really good match in every case one would require to hold a large stock of these painted teeth, and as they are not wanted particularly often, such an investment might not be remunerative. It is therefore better to be able to tint mineral teeth to our own requirements, and we can then copy the style of the markings on the remaining natural teeth.

There are special painting outfits to be had, but so far I have successfully used the dry pigments used by miniature portrait painters in their work.

In mixing these pigments I use one of the essential oils such as cloves, eucalyptus, etc., but in cases where one is working with delicate tints it is preferable to use oil of lavender which is colourless.

The specimen of six incisors, which is now passed, is painted in two shades, a dark brown in grooves, and a lighter brown over the surface of the tooth. The painting can be applied to the glossy surface of the tooth or the grooves, or entire surface may be ground, which will probably cause the stain to adhere more thoroughly. Any teeth which I have tinted with this pigment are quite satisfactory, and I now pass round a one tooth case which has been worn several months.

It shows that the colouring has resisted the wear and tear of mastication, etc. Some of the painted incisors already referred to have been polished with pumice and oil, and they do not exhibit any difference in colour or appearance, when comparing them with the others.

I feel, gentlemen, that time has necessitated me to treat the subject under consideration to-night, in a very cursory manner.

Porcelain work is a large subject, and each class which I have taken up to-night would in itself be sufficient for an evening's paper and discussion. I trust, however, that I may have interested some present sufficiently to induce them to practise this interesting branch of our profession. The first attempts are not likely to be perfect, but continued practice will ensure satisfactory results. I consider that although porcelain work now occupies an important place in modern dentistry, it is still merely in its infancy, and much more attention will in the future be directed to it as one of the fine arts of the profession.

New bodies, materials, and furnaces are being introduced continually, and this fact in itself shows that present results are still found wanting.

The gas furnace will, I anticipate, be quite superseded, in cities at any rate, by the electric furnace to which variety, I think, we must look for the furnace of the future.

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## PROTRUDING LOWER AND RECEDING UPPER TEETH CORRECTED BY AN INCLINED PLANE.

By Dr. Farrar, New York.

To show the value of an inclined plane, the case of a girl about thirteen years of age is given. Her side teeth, molars, cuspids and bicuspids, were very short, and although the roots were not fully developed, the side teeth had erupted sufficiently to occlude properly. The lower incisors, however, were more than an inch anterior to their proper places and occluded anterior to the upper incisors, the wrong contact causing both the upper and lower teeth to continue to move each other still further out of place. The lower lip, as a consequence, was of course too prominent, and the upper one not sufficiently so.

The patient could by effort draw back the lower jaw so as to permit the edges of the upper and lower incisors to occlude, but could not draw it sufficiently back to enable the lower incisors to occlude posterior to the upper ones.

All that was necessary to give the short side teeth an opportunity to further erupt, and at the same time force the lower incisors backward and the upper ones forward, was to wear an inclined plane on the lower teeth. This plane was bevelled to such an acute angle that all the incisors, upper and lower, moved at the same time oppositely.—*Dental News.*

# British Journal of Dental Science.

LONDON, MAY 15, 1898.

## RECIPROCITY.

There are over fifty institutions in the United States engaged in the teaching of dentistry. At the last meeting of the National Association of Dental Faculties, thirty-eight of these institutions were members of the Association and the applications of the others for membership were in various stages of progress. We may soon hope that all the various American dental schools will own allegiance to the National Association, which has already done so much towards levelling up the educational standard of dentistry in the United States. A letter was read at the same meeting from Dr. Wm. Mitchell of London, who, as the mouthpiece of the American Dental Club of London, complained that the degrees of the Colleges subscribing to the Association were not recognized in Europe. This they think is a great injustice both to the Colleges and to the graduates past and future.

The attempt to standardize curricula and examinations is coming more and more to the front. Formerly, and still to a great extent, each school, college, or university set its own curriculum and examination and appointed its own examiners. Now the attempt is being made more or less successfully to centralize and standardize all such educational machinery, and so avoid the anomaly of very different grades of medical and surgical training endowing the respective possessors with the same privileges. The General Medical Council is doing for dentistry in these Islands what the National Association is doing for the States. But before reciprocity between two different countries can be arranged, the same process must be carried on between the countries as is already being conducted in the various colleges in the individual countries. For instance, before reciprocity can become an accomplished fact in dental matters between the States and ourselves, the educational standard of both must be brought on a par. Without being carping or vainglorious we are compelled to affirm that Dental education in the States is open to criticisms which do not apply to us. Colleges or Universities among our cousins are often "run" as purely private money-making concerns. Inducements are in some cases held out as to the ease with which the curriculum can be gone through, and statements made as to the rare occurrence of failure in the final examination. These statements unfortunately are often only too true, as the teachers are the examiners and have a financial interest in passing as many candidates as possible. We have reason too to suppose that the "beneficiary" or "scholarship" student system has been abused, as has also the system of bestowing honorary dental qualifications on more or less worthy objects. The eagerness of the competing colleges is also borne out by the fact that students have completed their curriculum while still owing their fees, a thing unknown amongst us, where fees are always paid in advance.

We do not think that a joint Committee of British and American dental educationists will be formed in the near future, but we do think that a request formulated by the American Dental Club is worthy of all attention. This request is that authorities should institute enquiries so that each country may know what credit ought to be given educational certificates from institutions in other lands. We do not permit American graduates to register here, simply because their curriculum differs from ours, but where a certificate from a high-class American University is presented to our authorities the candidate is given full credit for that portion of it which corresponds to the similar portion of our curriculum. In the same way a graduate of our colleges is given credit for his work already done when he wishes to graduate at an American University. This is as far as reciprocity has gone at present, and it seems to us no greater "injustice" one way than the other, except perhaps that as the numerous American colleges have been turning out graduates in a very much shorter period than is the case with us, there is a larger number of them looking for spheres of work abroad. The tendency with our colleges, which are very little influenced by financial considerations, is to make our curriculum more severe, from the preliminary entrance examination onwards. The examiners are not teachers in our dental schools, and are unbiassed in their work of testing the knowledge of candidates. The consequence is that the ordeal for the L.D.S. diploma is a severe one, and is still becoming more searching. When the American schools can meet us on level ground it will be time enough to discuss reciprocity, and meanwhile we welcome the efforts of an honourable body such as the National Association, which, working for the advancement of the profession, is assisting in the progress and welfare of mankind.

THE HUMOURS OF HOSPITAL PRACTICE.—Mr. Frank Farmer sends us a couple of letters from Hospital patients which are distinctly amusing. In one the patient writes "A few years ago I had my tooth taken out, and now it is beginning to grow it pains me very well and threw that I have the heddake and my gum is very sowlen." We have heard of teeth growing after replantation, but this tooth seems to grow after it was taken out. The next letter from a father looks like an incitement to murder, as he says of his son, "Please put him under heather." We think, however, that it is not the churchyard, but the anæsthetic which is meant.

THE SALE OF POISONS.—The *Globe* in drawing attention to this, says, "As a matter of fact, the same person who cannot procure from the chemist two pennyworth of laudanum to soothe an aching tooth, can buy without any formalities at all poisons enough to slaughter a regiment from the people who sell photographic apparatus. We have not the slightest intention of saying what these poisons are; but at least one of them is many degrees more powerful than the ordinary dilution of Hydrocyanic Acid." This is perfectly true, but at the same time if Cyanide of Potassium, which is the poison referred to, is bought in a retail manner from anyone but a registered chemist, it is an illegal act.

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FOREIGN DOCTORS AND DENTISTS IN ITALY.—Mr. Frederic H. Balfour writes to the *Times* from Florence:—"It is well known that the Italian Government has for some time past contemplated the disqualification as practitioners in Italy of all foreign medical men who have not taken an Italian degree. This unwise policy, however, seems hanging in abeyance, the authorities being apparently reluctant to put it in force in view of the great pecuniary benefits resulting from the presence of English and American visitors and residents, many of whom would be deterred from coming to Italy at all if they were unable to command the services of doctors of their own nationality. But with regard to dentists the Government is credited with different views, and it is said that prohibitive enactments are very shortly to be adopted in their case. This would surely be a very short-sighted and unjust step. Italian doctors stand at the head of their profession in Europe, but Italian dentists are greatly inferior, and in many ways far behind the times. The reason probably is that doctors are supposed to be more important to foreign residents than dentists; but surely there are many English people and Americans who are greatly dependant upon dental surgery, and would feel serious misgivings at the idea of living in a country where in case of urgent necessity and suffering they would only have an ignorant and unskilful operator to resort to." We fail to see why the distinction should be drawn between the doctors and the dentists. We think, moreover, that as the Italian doctors are good, and the Italian dentists "greatly inferior," it would be a more logical proceeding to reverse the anticipated policy.

Soft Tooth-powder.—In an Editorial article published in this Journal some months ago, the opinion was expressed that most dentifrices were composed of too soft ingredients, especially when used by those who are prone to accumulate tartar. Dr. Talbot of Chicago, also seems of this opinion, as he writes—" In regard to tooth-powder, I feel confident that many dentists make a mistake in recommending nothing but soft substances. One writer upon the subject of oral hygiene says, in speaking of a tooth-powder, ' It should contain a scouring or polishing agent of the nature of a minutely-divided powder, such as precipitated chalk.' I would like to ask how much scouring and polishing can be done with chalk ? There is no objection to using the chalk for bulk, but to scour and polish the teeth I prescribe equal parts precipitated chalk and powdered cuttle-fish, carmine to colour, orris root and fine sugar to sweeten. This mixture, when rubbed up and put through a No. 60 sieve, makes an excellent powder which may be used two or three times a week."

Pumice Powder in Dentifrices.—With respect to the above we consider that Dr. Talbot errs on the other side, and that the powder should contain two-thirds less cuttle-fish powder, or be only kept for occasional use. The sugar is a useless and perhaps deleterious ingredient. Another writer says, " most people object to any sort of tooth powder or soap containing pumice stone ; that he had made from pure olive oil a soap, or castile soap, and into it he put a considerable quantity of pumice stone which he used entirely for brushing the teeth. Instead of injuring the teeth it cleanses them much better and it is much more satisfactory in its use." A " considerable quantity" is only vague, but speaking from personal experience, we have found no ill effects from using and prescribing finely powdered pumice in the proportion of one in four, or one in six with chalk and powdered soap.

The Ideal Dentist.—An American contemporary thus tersely sums up the attributes of the ideal dentist. " The ideal dentist is an incarnation of German learning, French art, English thoroughness, American push, and Southern chivalry." Naturally each one of us knows only one man who will satisfactorily "fill the bill!"

FORMALDEHYDE FOUND UNSATISFACTORY.—Formaldehyde (and Formalin, which is a forty per cent. solution of formaldehyde) have been much to the fore of late as a disinfectant and antiseptic. Dr. Goler, Health officer of Rochester, N.Y., has been experimenting with vapour and marking its effect on cultures of bacilli. He experimented with various strengths of vapour on the bacilli of diphtheria and tubercle, and found that its action was absolutely nil. Burned sulphur under similar conditions proved highly satisfactory. The results of these experiments lead him to believe that the value of formaldehyde as a disinfectant, with a sufficient penetrating power thoroughly to disinfect in practice, has not yet been proven. It may, however, be an excellent antiseptic in dental work, and we are inclined to think it is.

EXAMINATION PAPERS.—The following questions set by the Maryland University seem to show that the knowledge expected in those subjects from dental students graduating, is neither very extensive nor profound. :—

### Physiology.

What are the primary stages of digestion in which the mouth is concerned? What are the functions of the peridental membrane? What changes take place in the blood as it passes through the lungs? What is meant by residual air? tidal air? What proportion of the body's weight does the blood compose? What is reflex action and give examples.

### Anatomy.

Name the bones of cranium. What cavity does the superior maxillary contain? Name the organs of Insalivation. What are the principal muscles of Mastication? Describe the ramus of the inferior Maxilla. What are the branches of the fifth nerve supplying the teeth?

# Review.

A Manual of Dental Anatomy, Human and Comparative.
By Charles S. Tomes, M.A., F.R.S. Fifth edition.
London : J. & A. Churchill, 1898.

Again another edition of this well-known work. Each succeeding generation of Dental Students looks upon it as the guide through the intricacies of the subject ; and in after years when, enjoying moments of leisure from his practical work, the practitioner turns to a new edition, he recognises the old land-marks. Pictures of "hinged teeth," of a "transverse section of the reserve poison fangs of a viper," recall the stirring times of student days, the disputations with fellows and the preparation of traps for teachers in the elucidation of the text on some apparently contradictory matters. We find, however, that since our time much that is new appears in the present volume, and one does not envy the modern student his labour over the trituberculate theory and the science of cusps. Originally intended mainly for Dental Students, this book has become useful also to those studying Biology in general, and we gather from the preface that the author has borne this in mind especially when selecting the most important of the latest information in Comparative Odontology.

Those who have read Mr. Tomes' recent communications to the Royal and other Societies are of course prepared to find the later views about Enamel and Dentine properly set out in the present edition, and we are glad to think that the author is, happily, still engaged in research. The almost total absence of organic material from enamel is well set out and the explanation of the new analysis seems quite satisfactory. "Enamel is to be regarded as an inorganic substance composed of lime salts which have been deposited in particular patterns and formed under the influence of organic tissues, which have themselves disappeared during its formation." What has hitherto been set down as organic matter in the completed tissue is simply water combined with the lime salts. But although Mr. Tomes agrees with Mr. L. Williams as to the solidity of enamel, the way in which this comes about is still the subject of discussion. We were glad to find that in this edition the old mystery about the existence of dentinal tubes prolonged into the enamel, is cleared up. This was one of the things the student hovered over formerly. The only satisfactory explanation one could give him was, of course, that a tube in enamel was analogous to a tube in dentine, and probably was produced during calcification in much the same way. Mr. Tomes has now given the results of his examination of the development of enamel in the Marsupialia, where tubes commonly exist, and formulates his theory of calcification as follows :—The ameloblast itself does not calcify, but furnishes a fibrillar process continuous with its own plasm, which serves for the entire length of an enamel prism. Calcification and the changes preparatory to calcification take place in or around each fibril, quickly reaching its central axis in solid prisms enamel, but never reaching it in tubular enamels. Mr. Williams, on the other hand, says that the enamel rods are built up by the successive rhythmical orderly deposit of globules linked together with plasm strings and proceeding from the ameloblasts. Around the skeleton thus formed an albumen-like substance flows (from the ameloblast) supplying the cement substance and probably the mineral matter, for the calcification of the whole. This theory does not seem to provide for tubular enamel. Röse thinks that calcification commences in the Tomes' processes which thicken until there is but little inter-prismatic substance between. Of course this is just the opposite to the centripetal calcification now suggssted by Mr. Tomes.

In writing upon Dentine the author naturally alludes to the researches he has also made in the composition of this tissue as well as to the work of Mummery and of Black. It has been generally held that the organic matrix of dentine constituted from 28 to 31 per cent. But Mr. Tomes explains that if the lime salts are first dissolved out, and the residue dried, 19 per cent. is about the right figure, i.e., something like 8 per cent. of water was held in chemical combination with the lime salt and can only be driven out at red heat.

Dr. Paul's observations on Nasmyth's membrane, first published, we believe, in this Journal, are well set out, and the author states that the present state of knowledge shows the structure to be a product of the external layer of the enamel organ.

In the Chapter on Development, Röse's table of Dates of appearance of tooth structures now replaces that of Magitot's.

Noticing that the printer's interest in the head and jaws of

Hydrophin did not prevent him placing Fig. 129 upside down, we now take our review towards the end of the book, and notice the interesting remarks about the Fifth Nerve based upon Dr. Gaskell's researches. "If these views be correct some of the puzzling phenomena of reflex pain, &c., which are manifested by the fifth nerve become more explicable."

The type and illustrations of this book of course leave nothing to be desired, and we hope that many of our readers will share our pleasure in reading the latest authoritative statements upon Dental Anatomy, a subject which after all is useful as well as interesting.

# Abstracts of British & Foreign Journals.

## THE USE OF NITROUS OXIDE GAS AND OXYGEN DURING SURGICAL OPERATIONS.

By H. Bellamy Gardner, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Anæsthetist to Charing Cross Hospital, Anæsthetist to the National Orthopædic and Male Lock Hospital.

So many advantages might be claimed for the introduction of an anæsthetic agent which would combine the four attributes of safety, a rapid unconsciousness, muscular relaxation, and freedom from after effects, that a few further remarks on the results which are at present attainable with nitrous oxide gas when mixed with suitable proportions of oxygen may prove of interest as offering the addition to our list of an inhalation less incapacitating than chloroform and ether, but scarcely inferior in value for many surgical procedures of moderate gravity.

The question at once arises, Under what conditions will such an anæsthetic be of special value?

1. A complete examination of the pelvis and abdomen is often needed before a diagnosis can be arrived at in cases which may require ether for an operation shortly afterwards; on these occasions, without any special preparation, gas and oxygen will prove a most convenient help.

2. As ether is very safe, in modern days it is no exception to find patients who have inhaled it several times, but suffer considerably from after-effects; to these the substitution of a tasteless gas during a surgical operation is a great relief.

3. Many operations require some further painful procedure during convalescence, the removal of drainage tubes, the moving of stiffened joints, the reopening of a wound for hæmorrhage or redressing; in these it is particularly desirable not to upset the patient's digestion by a second dose of ether if nitrous oxide can be made to rise to the occasion.

The apparatus invented by Dr. Frederic Hewitt for use in dental practice is adaptable to surgical cases after a slight enlargement of the oxygen apertures in the mixing chamber, from 10 to 20 per cent. of oxygen being required when the face-piece is kept continuously applied. About 50 gallons of nitrous oxide and 7 or 8 gallons of oxygen are inhaled on the average during each quarter of an hour's narcosis. Beginning with 2 or 3 per cent. of oxygen the patient inspires the gases for five or six breaths, and by means of a dial plate the oxygen is then increased in amount, according to the depth and rate of breathing and the colour of the ears and face.

We know exactly the symptoms of asphyxia which nitrous oxide given alone produces—namely, cyanosis, jerky, rapid breathing, twitching of the limbs, and dilated pupils. These objectionable results are avoided by the presence of oxygen, and by means of experience in the use of gas alone the amount of oxygen required in each case is discernible the moment respiration tends to vary at all from that of normal softly snoring sleep. Clinically, if the breathing grows faster and deeper, and colour a trifle dusky, more oxygen is wanted; if quieter and slower, the oxygen must be reduced.

Let us now inquire what type of anæsthesia is produced, and the symptoms observable during the narcosis. The colour is normal, the breathing of a softly snoring type, not so stertorous as with ether, not so quiet as under chloroform; the pulse is strong, full, and regular; the abdomen is generally quite flaccid, but the limbs may show a slight tendency to rigidity; though the legs will offer no resistance to being placed in the lithotomy position, they may show slight reflexes from time to time. The blood from an incision during this anæsthesia may appear somewhat venous at intervals; this is not, however, due to congestion, but to the fact that nitrous oxide to some extent replaces oxygen in the hæmoglobin and the purple colour of the new product becomes evident in the flowing blood, even while the facial colour is healthy in appearance.

Alcoholic patients are not good subjects, nor are very powerful athletic men; but most women and well-nourished persons generally can be regarded as suitable cases, while those who are weakened by illness often take the gases remarkably well.

I have notes of a number of successful administrations lasting from 15 to 20 minutes, and in these I have not observed any symptoms which would indicate that the anæsthesia has any more definite limits with regard to time than of chloroform or ether.

The recovery to consciousness after removal of the face-piece has been very rapid, often complete in 2 or 3 minutes, and sickness has been conspicuous by its absence.

I think the safety of nitrous oxide and oxygen is greater than that of the former gas alone—the safest of all known anæsthetics—for during the past eight years its adoption in dental practice has been rapidly becoming general, and no fatality has ever been recorded under its influence.—*British Medical Journal.*

## PORCELAIN INLAY.

One of the great difficulties in the success of an inlay is encountered in matching the colour, particularly when it is extensive, covering half or three-fourths of the width of the tooth. When a rod or piece of porcelain has been selected, which seems exactly the shade, after being fitted it will very often be found to be more imperfect in colour than it promised.

Another complication often arises from the fact that the tooth structure around the cavity is not one colour, sometimes darker near the gingival border, either on account of the shadow of the gums or discoloured dentine, and occasionally, broken down near the approximal surface, there may be a shadow of a filling which would affect the colour of the tooth.

The lack of uniformity in colour might not disfigure a natural tooth so much, but when an inlay is put in, the effect becomes more pronounced. All who have tried inlaying will quickly recognise this fact.

When an inlay is too light, which is generally the case, it can be shaded darker by colouring the bottom or reverse side. These inlays are not exactly transparent, but generally are thin enough to make it possible to modify the colour in the manner described.

After the inlay has been fitted and ground so as to be nearly as thin as it must be, after the final polish, try it in, and any defects in the colour may be corrected or modified by colouring the bottom or reverse side with water-colours or some suitable colouring matter. As soon as it becomes dry, try it in again, and if not correct modify it till the exact shade is obtained.

It frequently occurs that to get a good effect one part of the inlay must be a shade darker or lighter than the other.—*Dental Weekly.*

## THE TEETH AND LIFE INSURANCE EXAMINATIONS.

Dr. Beadles, in his presidential address at the St. Augustine meeting, referred to the peculiar indifference manifested by physicians in general to the condition of the teeth as a factor in diseases. If statistics could be procured, showing the condition of the teeth of all persons upon whose death any given insurance company made payment during a year, the officers would probably open their eyes in astonishment. An intelligent study of the teeth might reveal facts in regard to longevity that would be surprising. Both the public and the insurance companies would be benefitted if the condition of the teeth was made a subject of investigation in the medical examination for life insurance.—*Dental Weekly.*

Dr. W. S. Locke says: In placing regulating appliances in the mouth, I have found it an excellent idea when bands are placed on the teeth to be moved to set them in chloropercha instead of cement; the bands can then be warmed and slipped off at any time to make changes or to adjust the retaining appliances without any pain to the patient; and when bands are used around them for retention they are fitted so that they will fit in position before regulating, taking the impressions and soldering after regulating.

# Reports of Societies.

## ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, April 4, 1898. Mr. Boyd Wallis, Vice-President, in the chair.

The Secretary read the Minutes of the last meeting, which were confirmed.

Mr. Thomas Edward Constant signed the Obligation Book and was admitted a member of the Society.

The following gentlemen were elected members of the Society:—As a resident member, Mr. W. May, L.D.S. Eng., 32, Oxford Road, Kilburn, N.W.; as a non-resident member, Mr. C. A. Malone, L.D.S. Eng., 63, Plymouth Grove, Chorlton-on-Medlock, Manchester.

The Librarian reported the following donation:—"Oral Surgery," by E. W. Roughton, M.D., F.R.C.S., presented by the publishers, Messrs. J. P. Segg & Co. He also stated that Kirke's "Operative Dentistry," and the Dental Register for 1896 and 1897 had been added to the Library. He also acknowledged an old engraving, entitled, "The Dentist Scaling the Ladies' Teeth," presented by Mr. David Hepburn.

### Casual Communications.

Mr. S. R. Apthorpe read the following notes on a case of Antral Empyema with Ear Complication:—

The patient, a man about 50, was sent to me by Dr. Curtis, with a previous history of malaria and of gouty diathesis. He had scarlet fever in 1894 without any ear complication. On December 22, 1896, he came to me complaining of pain in and around the infra-orbital region. I examined and found the right maxillary second molar was crowned, this being the only molar upon that side in the maxilla. The root was not tender upon percussion, neither was there any apparent bulging of any of the antral walls. No discharge from nose, so I again saw patient two days after, when very small discharge had that morning appeared. Gas was administered and the crowned root removed. An opening into antrum was found by a probe, and a quantity of thick pus came away—about one ounce. A rubber drainage tube was inserted and an Ash's antral syringe obtained for use at home. This operation took place on December 27.

About January 5, 1897, the patient was suddenly seized, whilst syringing out antrum through the tube, with violent pain in the middle ear of *left* side. Three days after this a profuse discharge from the ear, which immediately gave relief to pain. Deafness ensued at the time, and has become permanent, although there is now no discharge.

The patient was in the habit of pinching both nostrils in order to empty the cavity of the injected fluids, and in so doing he must have forced some small foreign body, probably a plug of infected mucus, into the opposite Eustachian tube.

The patient subsequently was treated by Mr. Keetley, he making on February 6, 1897, a large opening into the antrum over region of first molar. The antrum was found to be abnormally large, and was scraped and plugged with iodoform gauze, but the packing could not be repeated owing to symptoms of iodoform poisoning, boracic acid solution being subsequently used, and a gradual recovery taking place.

Mr. Apthorpe also read the following notes of a case of accident in a boy involving the maxillary central incisors. The patient, aged 9 to 10, who was at boarding school, fell while playing with his companions, and knocked out his left maxillary central incisor and fractured the right one somewhat obliquely at the neck, the nerve being fully exposed. This happened on Sunday evening, December 6, 1898, about 9 p.m. The patient received treatment for his fall and was put to bed, no attempt being then made to replace the tooth.

Next day, Monday, I saw the patient about noon, and as the alveolus appeared neither greatly bruised or swollen, I replaced the tooth after taking antiseptic precautions by washing it in a very weak solution of hydrarg. perchlor. The tooth was then ligatured and a fair position obtained, but owing to it not being kept at rest it came out again.

Next day an attempt was made under nitrous oxide to obtain a perfect position, the root being opened through the apical foramen and filled with gold. A splint of gutta percha was adjusted to keep the tooth in place. The patient did not take kindly to the splint and the mouth began to be sore from the fall, so the position was not maintained although liquid foods were given. Three days after, at the request of his friends, I removed the tooth, the root of which already showed a small amount of absorption, the apex being much rougher than before.

The mouth was now allowed to heal, and an attempt made to begin preparations for a crown upon the right incisor root with an extension for the missing tooth; but the youthfulness of the patient upset calculations, and two days after a splint was adjusted with osteo. The splint has now been worn fifteen months, and is keeping the space from being encroached upon in order that the crown may be made when the patient is older. The bar of the splint also aids speech, being used by the tongue in formation of dental letters. The broken incisor root is filled, and is healthy, and is in good position for crowning when the time arrives for that operation.

The CHAIRMAN said, in reforence to Mr. Apthorpe's case of antral empyema, that he thought it very important that the opening into the antrum should be made large enough to admit of thorough irrigation of the cavity. The trephining instruments usually supplied for this purpose were altogether too small. He showed some instruments of four and five-sixteenths of an inch in diameter, with a central bayonet-shaped drill which acted as a guide to retain the trephine in position—a matter of great importance as regards the rapidity and success of the operation.

He mentioned the case of a patient, an elderly woman, whose life at one time was a perfect misery to her, so bad indeed that she thought of committing suicide through the wretched odour of the discharge. She now, by irrigation, kept the antrum healthy, and there was very little annoyance. Another case of his had done remarkably well, practically being cured, as it had given no trouble for twelve months, although the opening still existed.

Mr. CHARLES WEST read the following notes of a case of persistent temporary teeth in a patient with dichotomous thumbs: The subject of this communication is a youth, 18 years of age, in appearance somewhat cretinous, though not decidedly so; his height, however, being five feet, with short arms and legs, undoubtedly shows imperfect physical development. He entered the German Hospital suffering from a bronchial affection, and was successfully treated with the usual remedies. The house physician, in the course of his investigations, observed the condition of the lad's mouth and referred him to the dental department; upon examination we found remaining *in situ* nine temporary teeth in addition to all the members of the permanent series with the exception of three bicuspids, and the third molars. Deciduous and permanent teeth were firmly packed together, and if undisturbed by external agency would doubtless have remained a considerable time longer, the double row of teeth having an extremely unsightly and shark-like appearance. In the maxilla there were retained the two temporary canines, the right first temporary molar and the second left temporary molar ; the second bicuspid on the left side and the right first bicuspid were just peering through the gum, the right first permanent molar being extensively decayed and preventing the use of that side of the mouth in the function of mastication ; as a consequence the models show the presence of a large quantity of tartar. Turning our attention to the mandible we note remaining on the right side the temporary lateral incisor and second temporary molar ; on the left side the temporary lateral canine and first molar ; all the permanent teeth are erupted except the right second bicuspid and the third molars ; he has, therefore, counting both dentitions, a total of thirty-four teeth, sixteen in the maxilla and eighteen in the mandible, with two bicuspids just showing and the four third molars to follow in due course.

This abnormality is interesting when we consider the patient's age, but the treatment is self-evident, and leaves no scope for discussion. Such being the fact we should have scarcely ventured to bring the case before the Society only that the boy has in addition a congenital deformity, and here, sir, we must pause to apologise for going a little beyond our specialty ; but two abnormalities occurring in one individual is the excuse we offer for trespassing upon your time. The last-named deformity consists in bifurcation of the thumbs of both hands, remarkably so on the right hand, where the metacarpal joint seems to resemble a trunk from which is springing two digital branches possessing middle joints and capped with perfect nails ; the twin thumbs appear to have started upon an independent career, each turning almost at right angles from its fellow, until the second joint is reached, when a diversion is made in the opposite direction, bringing the tips nearly together ; they are nearly equal in relative strength and utility, making it difficult to differentiate the true from the supplemental digit. The same remark does not apply to the left hand, where we have a much more simple deformity ; the true thumb is here unmistakably evident ; it is, however, defective in shape and strength and is leaning over towards its rudimentary supplement, which is nestling, as it were, beneath the shadow and protection of the stronger member, affording, however, some compensation by giving additional support, thereby indicating nature's endeavour to correct and minimise the inconvenience of bifurcation. An examination of the models shows that the hands are otherwise well formed for a working lad (he happens to be a carman's help). We much regret being unable to furnish the history of the case ; it would be interesting to know whether other members of the family were similarly affected, and whether the dichotomy was the result of hereditary transmission or merely some deviation in embryonic development. The boy came to our rooms in the middle of a busy day ; my assistant obtained the models and we then hastily extracted the upper temporary teeth, sending him away with instructions to subsequently return, and get rid of the extraneous lowers. Unfortunately he overheard a remark as to the practicability or desirability of, in early infancy, removing the supernumerary thumbs, and taking fright at the bare suggestion, was never more seen, either at my rooms or at the hospital. We have delayed presenting this report for a considerable time, hoping that circumstances would again bring him under observation.

This deformity is by no means unique, though sufficiently rare to merit recording ; as far back as 1862 the late Mr. Chance, in a series of lectures delivered at the Orthopædic Hospital, cites several similar cases ; Annandale, of Edinburgh, in 1865, published a work upon "Malformation of Fingers and Toes," illustrating one case almost exactly like the right hand of the case before you ; Mr. Clement Lucas, in *Guy's Hospital Reports* for 1881, traces the transmission of supernumerary fingers and toes to a great-great-grandmother, no less than twenty-four out of her eighty descendants, regardless of sex, being thus affected, or 30 per cent. of those carrying her blood, and this notwithstanding the infusion of a foreign strain in each successive generation ; he does not, however, mention any oral aberration except in one instance, where the digital deformity is accompanied by hare lip and cleft palate ; the details of this case are unfortunately very briefly recorded. Mr. Bland Sutton (to whom this Society has been often indebted), in a series of interesting articles upon dichotomy, published in the *Illustrated Medical News* of 1889, also mentions various recorded cases. A perusal of these authors would amply repay those members who desire further knowledge upon the subject.

In conclusion, sir, we do not claim that the double deormity is more than a coincidence, but inasmuch as excessive development in one part of the physical structure is co-existent with retarded development in another, and in Mr. Lucas's case of surplus digits being accompanied by hare lip and cleft palate, and further, a relative of my own whose mental capacity was deficient, even to the verge of idiotcy, was said to have had six toes on each foot, of this I cannot vouch as I never saw them uncovered, but he wore boots far too wide for the necessities of normal feet; I can, however, affirm that although he had arrived at man's estate his teeth were deficient in number and quality, my memory serves me to state he had two imperfect maxillary centrals, no laterals, and very pointed canines, also a deficiency of lower incisors; he has been dead some years, and during his lifetime the subject did not interest me sufficiently to make more than mental notes. With these facts before us it is just possible that if our observations were more extended some analogy might be established between the two abnormalities; we merely throw out the suggestion in the hope that surgeons may be induced to extend their examinations to the oral cavity when confronted with dichotomous deformities.

The CHAIRMAN mentioned a case which he had seen of a somewhat similar character. The patient was a farmer's son and had two thumbs very perfectly formed. His general health was good. He considered that the retention of the temporary teeth was not such a very uncommon occurence. His brother, aged 40, had four temporary molars and as perfect a set of teeth as one could wish. He had recently seen a boy, aged 9 years, with all his temporary teeth, who was only just cutting his mandibular right permanent molar. The boy was very delicate in health. The Chairman also exhibited an interesting specimen of dichotomy in the skull of a young lamb.

Mr. F. J. BENNETT was much indebted to Mr. West for his very interesting communication. All pathological conditions interested the members, whether connected with their own speciality or not. To him the special interest of the case was that there should be not only an irregularity as to the number of teeth, but that it should be associated with dichotomy or any other abnormality of the body. As far as he was concerned he had not heard of the association of those conditions before, and it was one that would be very well worth looking up by those who had time to do so. It would be possible perhaps to form a series, in which from such things as dichotomy and irregularity in the number of teeth, right up to the extreme form of parasitic fœtus in which all the structures of the body were duplicated, as Mr. Bland Sutton pointed out and showed specimens of some years ago. The laws governing the excess or deficiency of teeth were not known, there were many theories which had been formed from time to time, ingenious in their way, but none of them sufficiently convincing to hold the field entirely unopposed. It was only by collecting facts and putting them on record that any generalisation could be hoped for in the future, and he thought the members were indebted to Mr. West for showing his specimen.

Mr. William Rushton then read a paper on "The Use of Gutta Percha in Conservative Dentistry," which is printed in the present issue; after which there was a discussion which will be given in our next.

# Dental News.

## DAMAGES FOR PERSONAL INJURIES.

At the Cardiff County-court before his Honour Judge Owen, Mrs. Marion Fletcher, of Glamorgan-street, Canton, sued Messrs. Goodman and Co., described as dentists, of 56, Queen-street, for £50 damages for personal injuries.

In opening, Mr. Sankey said that Marion Fletcher was a married lady, and her teeth being out of order she was attracted by one of the defendants' many advertisements that they would supply a new set of teeth for a guinea. She called at Messrs. Goodman's premises, and a person there looked at her mouth, and cut away a large number of her teeth. She paid 4s. on account, and the next day she went again, and had more teeth cut away. She then paid another 17s., but, after cutting or breaking off twenty-two teeth, the defendants' representative said that the one guinea set would not do, nor the three-guinea set, but that the five-guinea set would be necessary. The plaintiff, thereupon, paid another £4 4s., and she was supplied with a set of teeth. Shortly afterwards they began to give her trouble, and she went from time to time to Messrs. Goodman, but they only made slight alterations. She was unable to masticate her food, and she became so ill that she consulted Dr. Mullin, who examined her mouth, and told her to go to Mr. Quinlan, a well-known dentist in the town. Mr. Quinlan found it necessary to extract twenty-two stumps—(his Honour: "Oh!")—and his services were such as to run up a bill for £25. Dr. Mullin's bill was £10, and the poor woman had paid £5 5s. for the teeth, so that the claim for damages was not excessive. As a matter of fact, she had been obliged to abandon a part of her claim in order to bring it within the jurisdiction of the court.

The Judge: It is a wonder someone does not do away with that. You are entitled to £55 5s., and we can only give you £50.

Evidence was then called.

Mrs. Fletcher generally corroborated the opening statement of counsel.

Upon being asked who attended to her, she replied that the gentleman was in court.

This gentleman (who subsequently said his name was Stephens) stood forward at the request of the judge.

The Judge: Who are you? Are you the man with the dislocated shoulder? (Laughter.)

Mr. Stephens: No; I was the manager of the Cardiff branch.

The Judge: Which of the partners has a dislocated shoulder?

Mr. Stephens: Mr. Goodman, of Bristol.

The Judge: And he knows no more about the case than a man in the street?

Mr. Stephens: No.

The Judge: A more impudent attempt to postpone a trial I have never heard. I don't like these attempts to mislead the court.

Mrs. Fletcher then continued her evidence. She stated that the man broke off her teeth, and "the bits went flying all round the room." After they were broken off he put some stuff in her mouth in order to take a model.

The Judge: The same day?

Witness: Yes, and the next day I had new teeth put in. I could not wear them. There was a bad smell in my mouth, and I went for advice. I was told to take a tablespoonful of Epsom salts every morning. (Laughter.) I was so bad that a lot of congealed blood got into my mouth during the night. I afterwards went to Dr. Mullin, and he sent me to a trained dentist.

The Judge: And you paid £5 5s. for this—well, I can't call it treatment.

Witness: Yes.

Dr. J. Mullin said Mrs. Fletcher consulted him on November 22. Her gums were inflamed and ulcerated, and the teeth had been broken off. There was a rash round her mouth, and she could not masticate her food.

In reply to the judge, witness said it was not proper to break the teeth off, or to take a model the same day as teeth were extracted—not until the gums had become hardened.

Mr. Quinlan, dentist, said the plaintiff went to him, and he found it to be the worst case he had ever seen. On December 30 he extracted fourteen stumps, and on January 4 eight more. Some of them were quite sound, and in these cases the teeth ought not to have been broken off. The decayed ones ought to have been extracted, and replaced with false ones, and the sound ones allowed to remain.

Mr. Sankey: Do you call that barbarous negligence?

Witness: It certainly seems barbarous.

The Judge told Mr. Stevens that if he liked to be sworn and give evidence he could do so, but he need not unless he wished.

Mr. Stephens chose to give evidence, and said that Mrs. Fletcher refused to have her teeth taken out, so he cut them off.

The Judge: Sound teeth?

Witness; They were not sound. If they had been I should not have cut them off.

The Judge: But you broke them off.

Witness: No.

The Judge: But Dr. Mullin and Mr. Quinlan say so.

Witness made a remark about 99 patients out of a hundred, but the Judge interrupted with the remark: I hope you won't get 99 more patients in Cardiff.

Witness: I have cut some few hundred teeth off.

The Judge: Oh, I daresay you have. I'm sorry for the people who have had them done. (After a pause): Did you take the model for the mouth directly you cut the teeth off?

Witness: I did. It is the custom of every dentist to do that when the teeth are cut off.

The Judge: Are you a dentist?

Witness: No, I am a dental mechanic.

Witness, in cross-examination by Mr. Sankey, admitted that his name was not on the Dental Register. The chief partner in the firm was Mr. Edward Aubrey Goodman, of Bristol, and his name was also not on the register, but his brother's name was. Mr. E. A. Goodman was not a qualified dentist.

Mr. Sankey: Is there a single member of your firm a qualified dentist?

Witness: I don't know. Mr. Charles Morgan, the dentist in attendance at Cardiff, is, and his name is on the register.

Mr. Sankey: Where does he live?

Witness: He used to live at Southampton.

Mr. Sankey (looking at the 1898 register): Is that the "Mr. Charles Morgan, 73, High Street, Wimbledon, Surrey"?

Witness: Yes, I think so.

The Judge: When did you come to Cardiff?

Witness: I have been coming on and off.

The Judge: Then you had better be off again, (Laughter).

Continuing witness said it was not right to say that he "splintered" the teeth off. He never cut teeth unless the patient wished it. Mr. Morgan also saw Mrs. Fletcher. A "guinea set of teeth" consisted of the upper set, and not the lower, and this was specified on the card. He had not a card with him.

Mr. Charles Morgan also gave evidence. He said his name was on the Dental Register, and Wimbledon was his private address. He had, however, been at Cardiff for nine months. He saw the plaintiff.

The Judge: You did not see her when this man was performing the butchery upon her?

Witness: No, when I saw her she was wearing a temporary case. Her mouth was then in a dirty condition.

The Judge pointed out to witness that High Street, Wimbledon was all shops, and witness explained that he had an interest in a business there. He was not a member of the company, but was paid a salary.

Mr. Sankey: Who pays you?

Witness: I pay myself. (Laughter).

The Judge: Do you fix your own salary? (Renewed laughter.)

Witness: No.

The Judge: Who fixes the amount?

Witness: The amount was arranged before I came to

Cardiff. Mr. Victor Goodman engaged me, and his name is on the register.

In reply to another question he said he had never paid any sums in compromising claims like the present one before, but he had heard of them being done before his time.

His Honour, in giving judgment, said he hoped the case would be a warning to Cardiff people not to employ those advertising men who had no qualifications. A more shocking case of maltreatment of an unfortunate woman he had never heard of, and he was only sorry that he could not give judgment for more than £50. He gave a verdict for that amount, with costs.— *Western Mail.*

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BENEFITS OF CAVITY LINING WITH CEMENT.—(1) It retains the filling ; (2) it preserves the colour of the tooth ; (3) it prevents the metal from transmitting sensations of heat and cold to the pulp ; (4) by its use we save valuable tooth structure, as there is less cutting for anchorage ; (5) if caries should occur in any part of the tooth near the filling, it progresses less rapidly than if no cement had been used. *Jas. M. Magee, Items of Interest.*

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# FEW NOTES ON THE NEW PHARMACOPŒIA.

By WM. RUSHTON, L.D.S. Eng.

The British Pharmacopœia is the modern representative of the old Pharmacopœias of London, Edinburgh and Dublin. The best portions (presumably) of all three were boiled down by a Committee appointed by the General Medical Council to form the first British Pharmacopœia which was published in 1864. This volume was divided into two parts, the first being devoted to Materia Medica, and the second part to preparations and compounds. In 1867 a second edition was published, in which everything appeared, as at present, in alphabetical order. Doses were appended for the first time in this edition. An Addendum was published in 1874 which contained many new medicines, among which may be mentioned nitrite of amyl and chloral hydrate. A third edition was published in 1885, and in 1890 appeared another Addendum. The latest edition is now in the publisher's hands, and will shortly be ready for sale, but a few advance copies have been forwarded to the Medical and Pharmaceutical bodies.* The distinguishing feature of the new edition is that it is smaller than the last, the reason being that there are but few additions (only 80), and many omissions (188). Very few new drugs are included, the only ones of dental interest being salol, terebene and naphthol. The omissions are chiefly those of preparations which have not been found worthy of the opinion formerly held of them, or whose place has been taken by improved formulæ. The alterations in formulæ have been fairly numerous, and no doubt beneficial, although some old practitioners may rub their eyes when they find that the composition of some old favourite, such as black draught, compound rhubarb pill, and compound calomel pill have been changed. However, it may as well be stated at once, that the active ingredients of these remain the same, the excipient only suffering alteration. In the morphia injection, however, the change is much more important, the strength of the present hypodermic injection being less than half that of the corresponding preparation in the 1885 edition. There were 70 tinctures in the last Pharmacopœia, in the present there are only 67, and of these no less than 40 have alterations in their strength, although in most cases these changes are slight. Other noticeable features in the new work are that a laudable attempt at uniformity of standard has been made, the chemical and other tests for purity are more accurate and the doses are, as a rule, smaller. These latter of course, are only given as a guide, the actual dose in any case being left to the discretion of the prescriber. A new departure has been made in this direction by two sets of doses being given, one for a single administration and one for repeated doses.

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* It is now on sale.

I shall now briefly consider the changes which affect us as dentists. We do not use pharmaceutical preparations very largely, but in the new edition there are a few alterations with which we ought to be familiar. Decoction papaveris has been deleted, although we think that it will be a long time before a poppy-head fomentation will be abandoned by the British public, which generally seems to use it for the purpose of drawing an alveolar abscess to burst on the face. Gutta percha is no longer official, the place of the liquor being taken by Liquor Caoutchouc; Mastic has also been deleted

Among the new preparations, Cocaine has been added, the Hydrochlorate (now called Hydrochloride) being already official. The pure alkaloid is much used for ophthalmic and pharyngeal medication as well as for dental work. Glycerinum Acidi Borici is new, and is supposed to resemble a preparation called "Boroglyceride." It must not be confounded with Glycerinum Boracis, one being made from Boric or Boracic Acid, and the other from Borax. Glycerinum Acidi Borici is useful in stomatitis and aphtha. Liquor Caoutchouc in the form of "solution of rubber" has long been used by us, but the official form is pure caoutchouc, 1 oz. dissolved in 20 oz. of equal parts of benzol and bisulphide of carbon, while the preparation we usually employ is the red vulcanizing rubber dissolved in chloroform. The Liquor can be used for waterproofing a weeping surface or leaky rubber dam. Liquor Hamamelidis has been added and is evidently a copy of "Hazeline." Fresh witch-hazel leaves are macerated and distilled. It is a useful mouthwash after extractions. Liquor Hydrogenii Peroxidi is now official. Its synonyms are many some of them being peroxide of hydrogen, hydroxyl, hydrogen dioxide, and "golden hair wash." Its use as a bleaching agent, as a test for pus, and as an injection for putrid pulp canals is well known. Naphthol has been added, beta-naphthol with no admixture of alpha-naphthol. It is a powerful antiseptic and largely used for filling pulp canals. Salol as before mentioned, is a new addition and a useful one. It is an antiseptic and antipyretic, makes a capital mouthwash for odourous breath due to bad teeth, smoking, etc. Syrupus Ferri Phosphatis cum Quina et Strychnina is slightly weaker in quinine though the proportion of iron and strychnine remains the same. Those, therefore, who take an occasional dose of this tonic as a pick-me-up may do so without fear of taking a larger dose of strychnine. Tinctura

Quillaiæ is new, and is the basis of many frothing liquid dentifrices such as "Floriline."

There are a few changes in composition and strength. Those of interest to us are Acidum Sulphuricum Aromaticum —used as an application in Pyorrhœa Alveolaris—which contains a larger proportion of oil of Cinnamon; Acidum Sulphuricum Dilutum which is slightly weaker, and Argenti Nitras Induratus which is a toughened caustic made by fusing 19 parts of nitrate of silver and one part of potassium nitrate. This should be a useful preparation in stick form, for touching sensitive dentine and for applying to ulcers, &c. Extractum Physostigmatis has been reduced to a fourth of its strength. This calabar-bean extract has lately been recommended as a valuable addition to arsenious acid to minimise pain in nerve devitalization. Glycerinum Acidi Carbolici and Glycerinum Acidi Tannici are both standardised and made without heat, the latter method avoiding any heat decomposition. The final "e" in Glycerine has been officially dropped, it now being spelt Glycerin. Glycerinum Amyli is the same strength as before, but contains more glycerine and less water. I mention this preparation as I know of nothing better as an application to the hands in winter to preserve them soft and free from chapping.

Linimentum Iodi, beloved of dentists as an application for pericementitis, is now no more. Its name has been altered to Liquor Iodi Fortis. The composition has also been changed, the glycerine introduced in 1885 instead of camphor being now replaced by water. In Liquor Hydrargyri Perchloridi the Ammonium Chloride has been omitted.

Most of the official spirits have been much increased in strength. The official alcohols are now six in number, namely, Absolute Alcohol, now called Alcohol Absolutum instead of Alcohol Ethylicum, Alcohol (90per cent.), Alcohol (70 per cent.), lcohol (60 per cent.), Alcohol (45 per cent.), and Alcohol

(20 per cent.) The name "proof spirit" has been abandoned. Sal volatile is a little stronger, and the dose given is 20 to 40 minims repeated, or 60 to 90 single. Syrupus Ferri Phosphatis contains about a third less acid than formerly. This is a distinct gain, as the viscid acid syrup had a very decalcifying action on the teeth of children. Tincture of Aconite is weaker, being now 1 in 20 instead of 1 in 8. Fleming's Tincture, which is usually prescribed by Dentists as being stronger, is not official. Tincture of Capsicum is stronger, containing one of the drug in 20 instead of 1 in 27. Tincture of Myrrh is nearly twice as strong as formerly, as it now is made 1 in 5, instead of 1 in 8. Aconitine Ointment sometimes prescribed as an application for trigeminal neuralgia is now stronger, being 1 in 50 instead of 1 in 60. The Metric System has been placed side by side with the "Imperial" weights and measures in the various formulæ and another feature is an Appendix of "Alternative Preparations sanctioned for use in India and the Colonies."

As will be seen the changes which affect us are neither numerous nor startling. They will no doubt be followed by new editions of our Dental Materia Medica text books in due course.

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# HINTS ON EXTRACTION OF TEETH.*

By Mr. H. W. J. Hawthorn.

There are few operations in Surgery that excite stronger feelings of dread, or to which most people submit with more reluctance, than the extraction of a tooth. Many endure the toothache for weeks, and even months, rather than undergo the operation, and indeed when we take into consideration the frequent accidents occurring in its performance, by awkward and unskilful individuals, it is not surprising that it should be approached with apprehension. But when performed by a skilful hand and with a suitable instrument, the operation is always safe and in a large majority of cases may be effected with ease. It is surprising that an operation so frequently called for should receive so little attention from medical practitioners, by whom, though not strictly belonging to their province, it must frequently be performed. This neglect can only be accounted for by the too general prevalence of the idea that little or no surgical skill is necessary for its performance.

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* Read before the Dental Students' Society, Mason College, Birmingham.

Now, as to the *indications for the extraction of teeth.*

Beginning with the *temporary teeth*, it will be sufficient to state that when a tooth of replacement is about to emerge from the gums, or has actually made its appearance either before or behind the corresponding milk tooth, the latter should at once be removed. Alveolar abscess, Necrosis of the roots, and pain in a temporary tooth which cannot be cured by any usual remedies, may be regarded as indications which call for the operation. The canine and 2nd temporary molars should be retained, however, as long as possible, for reasons which I need not enter into here.

The principal conditions which should determine the extraction of a *permanent tooth* are as follows:—

1st. When a molar, from the loss of its antagonising tooth, or from other causes, has become partially displaced, or is a source of irritation to the surrounding parts.

2nd. A constant discharge of fœtid matter from the pulp cavity through a carious opening in the crown, except, for example, when it is not very considerable and can by judicious treatment be arrested ; also where the tooth is situated in the anterior part of the mouth, and cannot be securely replaced by an artificial denture.

3rd. A tooth, which is the cause of an incurable alveolar abscess, should not be permitted to remain except it be an incisor or a canine, and the discharge through the gum be small and only at long intervals, and especially if the organ cannot be replaced by an artificial substitute.

4th. Irregularity in the arrangement of the teeth arising from disproportion between size of teeth, and the size of the alveolar arch, usually requires for its correction the extraction of some one or more teeth.

5th. All dead teeth, and roots of teeth which act as irritants, and teeth which have become so much loosened from the destruction of their sockets as to be a constant source of disease to the adjacent parts, or teeth otherwise diseased that are a cause of neuralgia of the face, disease of the maxillary sinus, dyspepsia, or any other local or constitutional disturbance, should as a general rule be extracted.

In *extraction of a tooth* the following conditions should be fulfilled :—

1st. The whole of the offending organ should be removed.

2nd. It should be removed with as little injury as possible to the structures in which it is implanted.

3rd. All unnecessary pain for the patient should be spared.

The method by which a tooth or the remains of one can be removed most certainly, quickly, and at the same time with the least amount of injury to the surrounding parts will also remove it with the least pain. Such instruments are forceps, and should be so constructed that they will accurately fit the tooth to be extracted, and so fashioned at the beaks that they shall readily pass within the gums and separate it from the neck of the tooth.

In *construction of tooth forceps,* certain general principles may be laid down. The terminal edges of the beaks should fit with accuracy the neck of the tooth for the removal of which it is designed. The greater the surface over which the pressure is diffused, the less will be the risk of breaking the tooth by the force employed. Assuming the tooth to be grasped by the instrument, the beaks should diverge from the terminal edges sufficiently to clear the crown. These edges should be sufficiently thin to pass under the gum to separate it from the neck of the tooth, and always where possible to pass a short distance within the alveolus. At the same time a sufficient amount of metal must be spared to ensure the requisite strength. The length of the beaks should be sufficient to clear the crown; any further increase would diminish the power of the instrument, or necessitate an inconvenient length of handle. In respect to length of handle there is great difference of opinion, also as regards the curve. Forceps for extracting front teeth will necessarily be straight, but those used for the removal of molars must be more or less curved. The straighter the instrument the more readily will its action be controlled. On this account it is desirable to limit the curve at the joint, and in the case of forceps for the upper teeth, to antagonise it by an opposite curvature in the handles. As teeth are variously shaped, so will it be necessary to have forceps of different forms. Instruments for extracting stumps should be made altogether lighter, and the beaks should be thin and sharp at their edges, so that they may be made to cut rather than to tear the structures connecting the root with the adjoining tissues. There is scarcely any instrument used in dentistry that has called forth more ingenuity in devising various shapes than forceps, and we are indebted to the late Sir John Tomes for his numerous inventions. Almost every practitioner has some peculiar design of his own which will accomplish what no other can. Doubtless, many of these instruments are very excellent, but it often happens that an inventor learns, by dint of practice, to do with some pet forceps of his own contrivance, what might as easily have been done with a simpler one already in use. Skill in the use of a few instruments is preferable to crowding one's case with an unnecessary number, unless the practitioner wants them for show.

Before commencing the operation of extracting, the *position of the patient and operator* should be taken notice of, as it is of great importance. The patient should be in such a position as to allow the operator not only perfect control of the tooth and the movements of the head, but also to permit him to exert his force to the greatest advantage. Generally speaking, for lower teeth, the patient should be as low as possible, and for upper ones, the position should be such that the operator is enabled to encircle the patient's head with his left arm, if necessary. The head should be kept if anything slightly forward in extracting lower teeth, while for upper teeth it should be inclined more or less backwards according to the position of the tooth in the head. With regard to the position of the operator, when removing lower teeth on the right side with hawk's bill forceps he should stand behind and to the right of the patient, the left arm should be brought round the left side of the head, at the same time the first finger of the same hand should be placed along the outer side of the alveolus, the thumb along the inner and the remaining three fingers below the chin, the wrist should be kept well down so as not to impede the entrance of light. In removing teeth on the left side of the lower jaw with hawk's-bill forceps, the operator should stand on the right side of patient, the first and second fingers of the left hand should be placed one on either side of the alveolus, and the thumb kept below the jaw to counteract the downward pressure. For extracting upper teeth, the operator should be on the right side of the patient, the first finger and thumb of the left hand being placed on either side of the alveolus.

When *forceps are used for extraction of teeth*, the operation is divided into three stages :—1st, is the seizure of the tooth, 2nd, is the destruction of its membranous connection with the socket, 3rd, is the removal of the tooth from the socket. Strict attention should be paid to these stages, as they will prove not only advantageous to the operator, but also to the patient, and each should be efficiently executed, before he proceeds to its successor, for if the tooth be unskilfully seized, the crown will be broken off in the attempt to detach it from its socket, and until this is done, the roots cannot be removed from their bony sockets. A tooth will resist great force, if an attempt is made to pull it straight from its socket, and some disastrous results have been known to follow such attempts made by persons unacquainted with the form of molar teeth they attempted to extract. Three or four teeth and the alveolus have been brought away, and the greater part of the floor of the antrum was actually torn away in one case. In seizing a tooth, the beaks should be closed lightly upon it and inserted under the free edge of the gum; and then forcibly driven in to edge of alveoli, or even a short distance within them. A novice should be instructed to lay hold of the tooth as far down towards the fangs as possible.

Some American dentists have great faith in the *gum lancet*, and say that it should generally precede the application of either the forceps or the key. I believe that most English dentists think that its use is neither necessary nor advantageous, except in those very few cases where the gum is unusually adherent to the tooth, and the only position in which this is likely to be productive of trouble or injury is on the posterior surface of a wisdom tooth. It will occasionally happen that the gum may be unnecessarily lacerated when firmly adherent to this part of a wisdom tooth, so it is perhaps safer to ascertain whether it is, or is not closely attached to the tooth before attempting its removal. When the forceps have been pressed well up, the operator must guard against crushing the tooth, by squeezing the handles of the forceps too tightly. To guard against this, some pass their little finger between the handles, whilst others partly introduce the fleshy part of the thumb. No more pressure should be put upon the tooth than will suffice to prevent the forceps from slipping. The manner of effecting the second stage and also the third will depend on the shape of the tooth to be removed. But it is quite impossible for anybody to extract teeth properly with whatever instrument he uses, unless he is fully acquainted with the form of each tooth, relative position and size of roots, their direction in the alveoli, and general form of alveoli themselves with the directions in which they offer the greatest and least resistance. An experienced hand will often successfully remove teeth with abnormal roots, which would assuredly be broken by less skilled manipulation.

Now I will say a few words as to the *extraction* of *different teeth*. First, as to the upper incisors, take for example a lateral. It should be grasped with a pair of straight forceps, and pressed several times in quick succession inwards and outwards, giving it at the same time a slight rotary movement, which should be continued until it begins to give way, then by a slight downward pull it is easily removed. In lower incisors, the roots being flattened laterally do not permit of rotary movement, they are loosened by an inward, outward and upward motion. These teeth rarely require extraction unless they become loosened by absorption of their alveoli, or rarely for regulation cases. Practice in their removal hence is very limited.

For the extraction of a *canine* more force is usually required than for the removal of an incisor, because of the greater size and length of its root. A pair of straight strong forceps should be employed for removal of the upper, and curved beaked forceps for the lower. In the extraction of these teeth, no rotary motion should be given as in the cas of incisors. In every other respect the operation is practically the same.

*Lower canines* are removed practically the same as lower incisors.

Very little rotary motion can be given to an upper *bicuspid*, in its extraction. After it has been pressed inwards and outwards several times, or until it begins to give way, it should be removed by pulling in the direct line of its axis. There seems to be great diversity of opinion as regards what forceps are best for extraction of these teeth, some operators prefer straight, others curved. I believe that men should use those forceps which they are best acquainted with, in fact, I think it is as well for an operator to be able to use both, especially in extracting under gas, as it seems such waste of time changing a pair of curved forceps for a pair of straight in removing teeth from the back to the front of the mouth, and in like manner changing straight for curved when incisors have to be removed.

*Lower bicuspids* are typical teeth for rotation, and in their removal great care must be exercised, as they are liable to shoos up between the blades of the forceps, and pass into the pharynx of the patient.

As regards *upper molars*, special forceps are required for either side. The outer blade should possess two grooves, of which the anterior should be the larger, and in a plane to the posterior ; there should be one groove on the lingual blade to fit the base of the palatine root. In removing these teeth it is best to loosen the palatine fang first, and the movement should be conducted at first slightly inwards so as to disengage the roots from the external alveolus, and afterwards outwards and downwards in the axis of the internal root.

In *lower molars* hawk's-bill forceps are far the best, as they possess not only greater power, but also allow a clearer view of the tooth. The blades of lower molar forceps should possess two grooves of equal size, so that one pair will suffice for both sides. In extracting these teeth a force applied slightly inwards and then outwards should be adopted. Sometimes on account of the roots of these teeth being curved backwards, it is as well when raising the tooth from the socket, to take it in a slightly curved direction.

*Upper wisdom teeth* are removed by the application of so little force as a rule, that any instrument by which they can be embraced will serve for their removal. The same kind of forceps will answer equally well on both sides of the mouth; the blades of which should be equal in curvature and situated in a plane more posterior to the handles than is the case with ordinary molar forceps.

In extracting *lower wisdom teeth,* it is sometimes found very difficult on account of the direction backwards of the roots, to manipulate the proper movement for their removal with forceps; but with an instrument which I shall describe later it is practically easy. The forceps used to extract these teeth are the ordinary hawk's-bill and the straight. The method of operating is to first loosen the tooth in its socket, and then raise the hand so as to push the crown of the tooth backwards, making it describe a segment of a circle. It occasionally happens that the roots of these teeth are bent in such a manner as to constitute a considerable obstacle to their removal, but by applying a rotary movement, which I have just described, you will find that it will answer in most cases.

The *temporary teeth* should be extracted in the same way as the permanent, and with the same instruments (only smaller). Very little force is required for their removal as a rule, if the power be directed in the proper direction, because the roots of these teeth have generally undergone some absorption before the operation is called for, and when they remain the alveolar processes at this early age are so soft and yielding as to offer little resistance to the tooth. The operator should be careful not to injure the unerupted permanent successors.

The *extraction of roots of teeth* is sometimes attended with considerable difficulty, but generally they are more easily removed than the whole teeth, especially the roots of molars, for after the destruction of the crowns, an effort is generally made to expel them from the jaws. This is done by the gradual absorption of the alveolus, together with the filling up of the socket by a deposition of ossific matter at the bottom, whereby the articulation of the root becomes weakened, and its removal rendered proportionately easier. The alveolar cavities are often wholly obliterated in the course of two or three years after the destruction of the crowns of the teeth, and the roots retained in the mouth simply by their connection with the gums.

There are two forms of roots—single and double, or triple. *Single-rooted* teeth leave necessarily only a single stump, but in molar teeth a sufficient part of the neck may remain, and so keep the roots intact. Forceps used for removing single stumps should be grooved to fit the stump, made very sharp at the edge, and of well tempered steel. In the construction of these instruments, sufficient space should be left between the upper part of the blades, so that the exposed and broken down part of the root shall not be crushed when the lower part of the blades closes upon the root. As regards the movement to be adopted for the removal of stumps with forceps, I need say little, as it is practically in most cases the same as I have already mentioned in reference to the extraction of the whole teeth. But sometimes you meet with an upper molar with all the roots connected, which has an appearance of being liable to fracture. The best way to remove it is to treat it as a single root, using root forceps and applying one blade to the palatine fang and the other to the strongest of the buccal ones, then by adopting the proper movement, the three roots will invariably be brought away, intact, and failing that, nearly always two of them, the remaining one causing but little trouble in its removal. If this fails, another method may be resorted to, viz., by using a pair of *splitting forceps*, thus dividing the roots, and then removing them individually by means of stump forceps.

A most useful instrument for extracting roots of teeth is *the elevator*. There is scarcely a root, or even a tooth which cannot be removed by it. This instrument consists of a blade terminating in a spear point or other selected form, and a stout shaft, mounted in a strong thick handle. The blade and shaft should be made of good steel, and reduced to a spring temper, so that it will resist any force the operator may employ. Considerable tact is nesessary for the skilful use of this instrument, and this can only be obtained by practice. Great care is also necessary to prevent it from slipping and injuring the mouth of the patient. When the elevator is employed, the forefinger of the operator's hand should be along the shaft, and the point should not reach more than three-quarters of an inch from the top of the forefinger, then, if any slip should occur, the instrument is well under control. In operating it may be employed as a simple lever. The edge is thrust down between the root and its alveolus, the handle is then depressed with a slight rotary movement and the edge of the blade cuts into, and takes hold in the surface of the root. It cannot be too strongly insisted upon that the edges should be sharp, so that it fairly cuts into the root and gets a good grip of it. The instrument is a lever of most simple kind. The alveolar process, or perhaps the neck of the adjacent tooth forms the fulcrum; and the long end is in the operator's hand, whilst the short end is in connection with the tooth. By depression of the handle the tooth is raised in its socket, but to effect its removal a rotary movement must also be adopted, as the instrument is liable to slip over the surface of the tooth. Many teeth, especially lower wisdom teeth, may be forced out of their sockets by a single effort, but a second or even sometimes a third may be called for. An elevator may be used in another way as well as a lever, thus in case of a root which is not very firm may be forced out of its socket, by pressing the point of the instrument upon it. Not uncommonly, the two foregoing principles may be adopted with advantage by using the elevator first of all as a simple lever, and completing the operation by using it to push the loosened tooth out of the sockets. In no case must it be used for the extraction of the upper wisdom teeth which occupy their normal position, and from the direction the force is applied, the tuberosity of the superior maxilla may be broken off, thereby causing considerable trouble. Mr. Cattlin narrated a case of a gentleman who operated on an upper wisdom tooth with an elevator, and had the misfortune to break off the crown of the tooth in endeavouring to extract the roots, the instrument slipped and broke away the tuberosity of the maxilla, with a part of the floor of the antrum, and a portion of the sphenoid bone. In the efforts which were afterwards made to remove the fractured portion of the bone with a pair of stump forceps, the tooth and the hamular process were also separated, and fibres of the external and internal pterygoid muscles were torn away. The ultimate results of this accident were that the patient, after suffering in health for sometime, became perfectly deaf on the injured side, and the movement of the jaw was permanently restricted. The inflammation had undoubtedly extended into the eustachian tube, and had also involved the ligaments and muscles attached to the Inferior Maxilla.

As regards *extracting under gas*, I will simply mention a few of the chief points, which should be taken notice of before and during the operation. The first thing is the position of the patient, which should be practically the same as under ordinary circumstances, except that special care must be taken not to have the head too far back. Before commencing, the operator should take particular notice of what he is going to do, and be very careful to examine the edges of stumps, and also the order in which he intends to remove them. Of course, everyone one knows that lower teeth should be taken before upper ones, on account of the bleeding, and posterior teeth before anterior for the same reason The next thing is to place the gag. The best situation for it to be is on the opposite side of the mouth to which you are operating, when possible. Some operators prefer it between the anterior teeth, others do not, as they say the incisors are liable to fracture. I think the best thing to do is to use your own discretion. In placing the gag it is advisable not to open the mouth too widely. Before commencing the administration of the gas, it is as well to take a final view of the teeth, gag, position of the tongue, and to be sure all artificial dentures have been previously removed. In operating, the tooth should never be lost sight of until it is out of the mouth, and no attempt should be made for any others until that has been safely removed. It should be kept in mind that some teeth are extremely liable to shoot out of the forceps and slip down the pharynx. It is a good plan to place a finger of the left hand behind the forceps, and so avoid any chance of the tooth slipping. In the removal of lower wisdom teeth, the gum sometimes sticks to the back of the tooth; should this occur, it can be safely left if other teeth have to be extracted, and cut away from the gum afterwards.

Now I will mention a few of the *complications* and *difficulties* met with in the extraction of teeth. One of the most frequent is the resistance in obtaining movement of a tooth in its socket. This may be due to abnormal conditions of the teeth themselves, such as exostosis, twisted, divergent roots, or one and sometimes more roots fused together, or to the alveolus. In attempting the extraction of these teeth, care must be taken as to the amount of force to be used. If after several efforts have been made to effect removal, and the tooth still resists, it is better to send the patients away, requesting them to come again in the course of a day or two's time if the tooth still gives trouble; then inflammation having been set up by the attempts at extraction, the tooth will in all probability have become slightly loosened, and the alveolus more pliable, making the removal easier.

Sometimes in extracting, a fracture occurs; this is generally due to not getting the blades of the forceps well up between the tooth and alveolus, or to the same causes as the preceding complication. Before attempting removal of the fractured parts the socket of the tooth should be well swabbed out with cotton wool, and the roots may then be well defined with a probe. If removal on the first visit proves a failure, treat the patient as in the previous case. If the nerve is exposed, a little strong carbolic acid applied will give great relief.

Removal of wrong teeth sometimes takes place; this may be remedied by replacing the tooth in the socket and applying a four-tailed bandage.

Complications in extraction connected with the *Jaws* are *fracture* and *dislocation*.

A small fracture of the alveolus occurs at times adhering to the tooth. It is an accident of little consequence, though it may lead to Necrosis. If a larger portion of alveolus gets fractured and the roots of teeth denuded, it is of much more serious character, as death of the exposed part may ensue, and necrosis may set in. Some cases have been recorded of direct transverse fracture occurring during extraction. Many of these cases are due to careless operating, and many to the use of the Key; but since this instrument has been abandoned, this kind of fracture is not so common.

*Dislocation of the Jaws* on one or both sides is not uncommon; it occurs generally under anæsthetics, and is due to employing too much force in extracting lower teeth, and not supporting the jaw with the fingers or thumb. It is sometimes due to frequently opening the mouth in operating under ether or chloroform. It is not of very serious consequence, and may be reduced by depressing the jaw at the posterior part, and at the same time elevating the anterior part. This can usually be accomplished quite easily.

The *passage of a tooth into the antrum* happens with a 2nd upper bicuspid more often than any other tooth. If a tooth is forced into the antrum (partially dislocated), it should be left alone, as attempting to remove it might dislocate it completely—a far more serious accident. If this latter condition does occur, the opening into the antrum must be enlarged and the cavity syringed with warm water; by this means, the tooth may be driven out by the return current; if this fails, a piece of curved wire with a piece of rubber attached to it may be tried. As a last resource, the antrum should be syringed out with some dilute solution, and the tooth left alone, the chances being that it will become encysted and give rise to no trouble.

*Trismus*, or closure of the jaws, is also sometimes met with.

There are a few accidents which may happen to *the soft parts of the mouth* during extracting teeth and should therefore be taken notice of, thus extensive laceration of the gum may occur. This happens as a rule with the lower wisdom tooth, and may be avoided by carrying out the directions that I have previously mentioned concerning the extraction of these teeth. When this complication occurs, the mouth must be kept scrupulously clean with an antiseptic mouth wash, such as;

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|---|---|---|
| R | Acidi Carbolici | ʒi. |
| | Glycerini | ʒii. |
| | Aquæ distil. | ad ℥x. |

or,

| | | |
|---|---|---|
| R | Sodæ Biborate | ʒviii. |
| | Glycerini | ℥ii. |
| | Aquæ distil | ad ℥viii. |

The *tongue or floor of the mouth* may be wounded by the slipping of the elevator, also in extracting under anæsthetics the tongue may become lacerated by the forceps, as it becomes swollen owing to loss of control of the muscles.

It may happen in extracting the lower wisdom teeth, that the *inferior dental nerve* becomes injured, this may be due to simple bruising or actual laceration. Anæsthesia of the lip, and dribbling of the saliva may follow according to the extent of the injury. The nerve if torn generally unites, sensation being restored. The most important complication following tooth extraction is *Hæmorrhage*, and is at times of very serious consequence. It rarely happens that excessive hæmorrhage follows the extraction of a tooth. It is oftener more desirable to promote bleeding by rinsing the mouth with warm water than attempt its suppression, especially after the extraction of teeth affected with periodontitis as such hæmorrhage relieves the congestion of the parts and hastens recovery. Nevertheless cases do occur in which it becomes excessive and alarming. It has been known in some instances to terminate fatally.

It is predisposed to by hæmophilia, sea-scurvy, purpura, and heredity, hence whenever a tendency to it exhibits itself in one member of a family, it is usually found to exist in all.

*Hæmorrhage* is divided into three classes: Primary, Recurrent, and Secondary.

*Primary* is usually of little consequence. When it is more severe than usual, applications of cold water or water as hot as can be borne to which some *styptic* has been added will generally be sufficient to correct it.

*Recurrent hæmorrhage* generally occurs after the primary has already ceased, and all appears well. It generally comes on some few hours after the tooth has been extracted. It is of more serious character than the Primary.

*Secondary hæmorrhage* occurs any time after the first twenty-four hours.

In the treatment of hæmorrhage several methods may be adopted. *Matico Leaf* is used with good results, but requires great care in its application. It should be softened by placing in hot water, and then rolled up. After clearing away the coagulated blood, it should be placed closely into the socket, then a few folds of lint should be laid upon the gum and held in position by closing the mouth. In rolling up Matico leaves the rough side should be kept outwards. It acts if carefully applied not only as a plug, but as an astringent.

If this should fail, a carefully constructed plug should be adopted. After clearance of the blood clots, the socket should be syringed out with ice cold water, and small pledgets of wool inserted which have been previously dipped in a solution of Tannin. Considerable pressure should be used and pledgets should be introduced until the socket is full, then after a pad of lint has been placed over the plug, the mouth should be closed by means of a fourtailed bandage. The pressure applied is the chief agent in arresting the hæmorrhage ; the styptic being of secondary importance. A very good plug is made by the use of the extracted tooth, wrapped in cotton wool and dipped in some styptic, then forced into the socket.

In addition to the plug, it is as well to treat the patient constitutionally. If the blood, after leaving the socket, rapidly coagulates, *Ergot* should be administered, as this drug causes contraction of the arterioles. It can either be given in the form of a mixture with sulphuric acid, or hypodermically. In the latter, the injection should be made deep in the muscles. If the mixture is used, the following dose should be given :—Ergot m xx., Dil. Sulp. Acid, m x., with ʒi. of water. The dose for the hypodermic injection should be from 3 to 10 minims.

If the blood on emerging from the socket shows no signs of coagulation, such drugs as Gallic Acid and Perchloride of Iron should be used. The former is most efficacious ; 15 grains should be given every 2 hours until the bleeding ceases. If iron is used, 10 minims in distilled water should be taken every 2 hours.

A very good method of arresting hæmorrhage as a last resource is the Actual Cautery.

Patients having a tendency to bleed, should be treated some little time before the operation with remedies which I have already mentioned, and it is as well to give an injection of Ergot at the same time as the extraction is taking place, as it is easier to prevent hæmorrhage from coming on, than to arrest it afterwards.

*Pain following tooth extraction* is occasionally met with. It may be due to several causes, viz., Incomplete extraction of the tooth, leaving an exposed nerve ; Too rapid healing of the orifice, causing discharge from granulations ; Laceration of soft or hard tissues ; Septic infection, due to the use of dirty instruments ; Presence of a foreign body in the socket, or from injury to the Nerve trunk or Nerve endings. The treatment is to remove any offending organ, apply dressings of Carbolic or Nitric Acids to the socket or part, and use an Anodyne Mouth Wash, a very useful one being—

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|---|---|---|---|
| R | Zinc Sulphate | ... | grs. viii. |
| | Zinc Chloride | ... | grs. vi. |
| | Morph. Acetate | ... | grs. ii. |

British Journal of Dental Science.

LONDON, JUNE 1, 1898.

## AT LAST.

We have so often felt obliged, when discussing the doings of our Medical Parliament, to recommend patience to our readers, that we hasten to take advantage of the public announcement that "The Queen has nominated Mr. Charles Sissmore Tomes, F.R.S., F.R.C.S., L.D.S., to be for five years a Member of the General Medical Council of Medical Education and Registration of the United Kingdom." This means that the "Crown" vacancy, caused by the death of Sir Richard Quain, has been filled up by appointing a Dentist who can by his experience and advice assist the General Medical Council not only upon the general subject of Medical Education but also with respect to the special requirements of the Dental Curriculum and of Dental practice. Our readers will doubtless have little difficulty in recalling lamentable instances where members of this authoritative Body have given public expression to sentiments and ideas which have been sufficiently "striking" to take the breath away from any ordinary dentist endeavouring to possess his soul in patience, whilst hoping, almost against hope, that his profession was improving in status, and that it would ultimately rank with the other learned professions. We may now expect that the new leaven introduced will in the next five years produce such an elevating effect that dental matters will be treated more as they should be, that the time of the Council will be saved and their labours lightened.

No possible objection can be raised by anyone to the choice made by the Crown when once it was determined to appoint a dentist. Mr. Tomes, by his birth, (we may almost say), and certainly by his education and experience, is the very man for the post. His soundness in debate and his discretion in difficult matters under discussion have been proved over and over again. As many of our readers know, he possesses a well balanced mind able to weigh arguments and reasons ; but he has also the originative faculty and may be trusted to devise fresh methods, or to suggest practical application of old ones, when occasion arises for dealing either with a new departure, or a re-arrangement of obsolete conditions. He has already done the General Medical Council good service as Visitor of Examinations, and his professional status has been recently emphasized by his election (as we record elsewhere) to the Fellowship of the College of Surgeons. But we are not concerned to give Mr. TOMES a good character. We merely wish to point out that the members of our profession may feel a just pride in having such a man to represent them, and that they may rest content that in due course the results of his influence on the Council will become apparent.

We cannot of course expect that at once and henceforth, things will go exactly as dentists wish, and that the privilege of grumbling will be abolished. The new member will have his own difficulties to contend with, and although we may fairly credit him with an extensive knowledge of the history and doings of the Body he joins, yet he must necessarily find much to learn. This may be said truly of many of the "old hands." From a statement recently published by Mr. VICTOR HORSLEY it would seem a difficult matter to educate oneself in Council affairs. This gentleman has spent much time in investigating documents with a view to elucidating different points, and he drew the attention of the President to "certain grave matters" which he discovered. The result has been that the Registrar was instructed to refuse further access to any document or financial paper without leave being obtained from the Executive Committee or of the Council. We do not suppose that our Representative will derive much encouragement from this little episode, but in the meantime we will present him with a little problem. How is it that there are some two hundred mistakes in the new "Dentists' Register"? We think we have before called attention to the way in which wrong addresses and dead men's names are retained. However, we will not, under present circumstances say any more at present, but whether appointed as a recognised "Dental Representative" or not, Mr. TOMES will do the Crown good service, and we may congratulate the Council and ourselves upon his selection.

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ANÆSTHETIZATION OF CHILDREN.—Chloroform as an anæsthetic for young children is becoming daily less used. For a considerable time a somewhat heated discussion has been sporadically breaking out in regard to the relative anæsthetic properties of chloroform and ether, but the best authorities appear to have agreed that for very young children chloroform is not the most satisfactory anæsthetic. Mr. Hewitt, anæsthetist to the London Hospital, reports satisfactory results from nitrous oxide and oxygen. He says: "The best results from the gas I have had with rather debilitated women or children, the patients whom we should expect to behave best under a comparatively light form of anæsthesia. In looking over my notes I find that in my three best cases, the patients were children between eleven and thirteen years of age. In all three cases the patients had had other anæsthetics on previous occasions and had suffered more or less severely from distressing after effects."

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TREATMENT OF ROOT-CANALS WITH PUTRESCENT PULP CONTENTS.—Oxidize the contents of the canals with permanganate of potash, inserting a small crystal and waiting for it to decompose the organic matter present. Cleanse carefully, following with aristol and oleum gaultheria when pus is not present. If pyemic conditions exist, precede the aristol with zinc chloride 5 to 10 grains to 1 drachm of water, or formalin 5 per cent. solution.

STANDARDIZING.—The tendency of Medicine has been of late years in the direction of procuring greater uniformity and accuracy in dosage, by obtaining the active principle of the various drugs in a certain known proportion to the vehicle in which they are administered. This is particularly seen in the new Pharmacopœia where many of the old haphazard preparations—which differed very much according to the care and drugs used—have been replaced by others in which a definite percentage of the valuable ingredient of the drug is contained in the solution, tincture, etc. It would be greatly to our advantage if this principle of standardizing were applied to dental preparations, and we accordingly welcome the idea of Mr. Rushton in the paper published in our last number, in which he suggests the isolation of the hydrocarbon "gutta" (which is the valuable constituent of gutta percha) for a stopping. By this means the useless resins are got rid of, and a standard preparation can be prepared, even although the gutta percha from which it is obtained may vary in quality.

TEETH FROM PAPER.—It is announced that a German firm is manufacturing teeth from paper pulp instead of porcelain. It is claimed that the teeth are more durable and preserve their colour well, whilst the risk of chipping is obviated. We have heard of houses, railway carriage wheels and golf clubs being made of paper, but we are inclined to be sceptical with regard to this latest item of intelligence.

MURDER OF A DENTIST IN PARIS.—A dentist's assistant, named Albert Martin, was arrested recently on a charge of murdering his employer, M. Louis Banderley, practising at the corner of the Rue des Poissonniéres, almost opposite the Gymnase Theatre. The circumstances of the crime, which at first sight appeared mysterious, are now explained. The accused, who is aged 19, just before the close of business hours, is alleged to have sent away the apprentice to post some letters, and then to have attacked the lady cashier, Madame Campredon. The latter, though fainting from loss of blood, raised an alarm, but, unfortunately, she was unable to prevent the subsequent murder of M. Banderley. The crime, of which robbery is said to be the motive, was committed in a crowded thoroughfare, and has created a great sensation in Paris. The victim was a Turkish subject, and dentist to the Ottoman Embassy. Albert Martin, the young scoundrel who so brutally murdered M. Banderley, is a sample of the terrible plague of adolescent crime which is now raging in Paris and the large French cities. As a dentist's assistant, with a parental home, he had no reason to consider himself as one of the disinherited. His crime was premeditated, and the way in which he spent the paltry booty with loose women showed that he was soaked in pernicious vice. He stood unmoved before the victim's corpse at the Morgue, and trembled in the cab the morning when he was taken to the Rue Poisonnière to go through the formality of reacting the tragic scene. M. Banderley was a kind-hearted man, who took the wretch in after he had been discharged by other dentists for stealing gold and embezzlement. Madame Campredon, the cashier, is in great danger.

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THE DOCTOR AS A JOURNALISTIC ATTRACTION.—The "medical column" is put forward as an attraction by various newspapers in this country, but not even the most enterprising of our journalistic impresarios has yet as far as we know offered the services of a real live doctor to his subscribers. It is announced that a well-known Paris newspaper has adopted this means of extending its circulation. It has engaged a doctor of medicine at a salary of £480 a year to give gratuitous advice at the office of the paper to all the purchasers of an illustrated weekly supplement which it publishes. Many years ago a firm of cheap tailors in London used to boast that they kept a poet; is the time coming when daily newspapers will advertise the fact that "we keep a doctor?" or that every holder of a winning coupon is entitled to have a tooth stopped or extracted; first prize, a complete denture !’

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THE ACTION OF FORMALDEHYDE ON DEAD PULPS.—The observations of the action of the formalin on living pulp tissue led Professor Böunecken to use the same in the treatment of pulps after devitalization with arsenious acid. Dr. Bounecken gives his preparation as follows:

R Cocain }
Thymol } aa........................ 1.0
Mix thoroughly 40 per cent. aquous sol.
Formaldehyde.......................... gtt X
Zinc oxid qu. suff. to make paste.

Five hundred cases were treated with this preparation in the way described above. Five per cent. solution of formalin was used instead of 40 per cent. to wash out the pulp chamber. Dr. Bounecken describes this method as an excellent one, being thorough, simple and quick, but he says that as the time for a record is too short he believes the old methon of extirpation of pulp, followed by complete filling of canals, is the only reliable one.

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THE IMPORTANCE OF PUNCTUATION.—Correct punctuation is not always of great importance, but an action was recently brought against an American newspaper by an advertiser of a patent medicine for damages alleged to have been caused by a slight error, which looks like a practical joke of the printer's devil. Among the testimonials to the marvellous efficacy of the remedy, one grateful sufferer was made to testify to the following effect: "I am now completely cured, after having been at the gates of death merely through taking half a dozen bottles of your medicine." The omission of a comma after the word "death" converted this declaration of simple faith into a statement not likely to increase the sale of the nostrum. The case is a warning to those persons—too numerous among doctors as among other people—who have a soul above punctuation.

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THE HOUR OF DEATH.—Apropos of the death of Mr. Gladstone, who died at about 5 a.m., the belief that death claims more victims at midnight than at any other hour is one that is widespread among the general public. M. Féré, in a communication to the Biological Society, 1888, stated that he had carefully gathered statistics at the Bicêtre and Salpêtrière hospitals concerning the hours of the deaths which hae occurred in these hospitals from 1878 to 1887, and all that he concluded from them was that from 7 to 11 p.m. there were fewer deaths than at other times. The statistics of different countries seem to differ. According to Signor Raseri, deaths in Italy reach their maximum from 2 to 7 p.m. Finlayson, of Glasgow, states that from 5 to 6 a.m. is the most fatal hour. Dr. Beadles affirms that most men die between 5 and 7 a.m., and most women between 6 and 7 p.m. There is also a belief in seaport towns that life ebbs with the ebbing tide.

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THE DENTIST AS AN IDEAL LOVER.—A writer in *L'Odontologie* draws attention to an advertisement in *Le Journal*, to the effect that "A young lady wishes to marry a dentist. Apply, etc." The writer remarks, "It would be interesting to the psychologist to discover the peculiar attraction that members of our profession have for young ladies. Some twenty-five years ago—on the stage, in novels, and in real life—the dream of the young girl was to marry an engineer, later on this ideal was replaced, with no less success, by the explorer; can it be that the turn of the dentist has arrived? Perhaps this is one of the effects of dentistry becoming a close profession, unless this young lady has a number of teeth to be filled with gold! In this case her aim is more practical than romantic."

INTRA-UTERINE CARE OF THE CHILD.—There have existed in Paris for some time maternities to which pregnant women having no protector and means are admitted, without discrimination as to their social position or nationality. In spite of the immense good benefit accruing to the women in these asylums, it is the children who are born there that obtain the greatest benefit. As all these women are assigned to Bandelocque's clinic for accouchement, Pinnard had an opportunity to make comparative investigations between the children of these women and others. The result of this study was reported by him at a meeting of the *Academie de Medicine.* Pinnard compared the bodily weight of the children of 500 women from the asylum with that of children borne by 500 women who had worked up to the time of parturition. The average weight of the children in the latter was 3,010 gr.; that of the children of 500 women who had been at least ten days in the asylum before their confinement was 3,290 gr.; that of the children of women who had lived in the dormitories of the clinic before their confinement, 3,366 gr. There is no doubt that if investigations could be instituted, the teeth of the children born in the clinic would be found to be of a higher quality.

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BOGUS DENTAL COLLEGES.—Professor Anderson Stuart, of Sydney University, has been travelling in Europe, America, and Canada, after attending the meeting of the British Association of Medical Science at Toronto. The primary object of his trip was to inspect the schools of dentistry in those countries, and to ascertain what had been done recently in the matter of dental education. "I had long suspected," he says, "and I now know that there exist in the United States especially a very large number of schools of dentistry which are sham and bogus institutions. A great many young Australians go to the United States each year to obtain dental education and qualification, and they should be in a manner protected from avarice and fraud on the part of such establishments. Whilst there are a large number of institutions wholly fraudulent in America, there are a small number of good and efficient organizations. Some of the fraudulent ones do not pretend to teach, whilst others teach very well."

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A DENTAL SCHOOL FOR SYDNEY.—Professor Stuart thinks that it is time an efficient school of dentistry was established in Sydney. His idea is a school of dentistry should be instituted which should work in conjunction with the University Medical School, and the Sydney Hospital. In this way he thinks there will be established a relationship between the University Medical School and the Sydney Hospital School in dental matters, similar to that which has existed in the past between the Medical School and the University. We hope that Sydney will soon follow the example of Melbourne and have a dental school founded on the highest ethical lines, and second to none in any country.

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HONOURS FOR DENTISTS.—Mr. Charles Tomes in addition to being nominated by the Crown to the vacancy on the Generrl Medical Council has been elected a Fellow of the Royal College of Surgeons ; he has also been elected to the Council of the Zoological Society. In the late District Council elections, Mr. J. Trude Fripp, L.D.S., was returned unopposed for the Harlesden Ward of Willesden, and in one of the Kilburn Wards of the same division, Mr. Edgar C. Fisk, L.D.S., was returned at the head of the poll. Mr. Harry Baldwin, M.R.C.S., L.D.S., has distinguished himself in another branch, namely that of Art, as a charming little oil colour painting (No. 650) from his brush now hangs on the walls of the Royal Academy Exhibition.

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LIQUID HYDROGEN.—Professor Dewar has at last accomplished a feat which he and many other investigators have been seeking to perform. Other experimenters have believed that they have succeeded in producing a trace of liquid hydrogen, but Professor Dewar actually produced as much as a wineglassful of the liquid gas in five minutes, and had the supply of hydrogen been larger the process would have been capable of producing any quantity. The boiling point of the liquid is placed at from 30° to 35° of absolute temperature, that is to say, at about 140° C. below zero. A tube closed at the lower end, when immersed in the liquid hydrogen was almost instantaneously filled with solid air. No fact could demonstrate in a more striking manner the extraordinary degree of cold of liquid hydrogen. The density of the liquid (0 6, water being unity) far exceeds that arrived at by calculation, a matter of great scientific interest. Using liquid hydrogen, helium was also liquefied by Professor Dewar, and its boiling point is estimated to lie not very far from that of hydrogen.

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BANQUET TO THE MEDICAL PROFESSION.—The Lord Mayor of London, Colonel H. D. Davis, M.P., gave a dinner to the Medical profession on Wednesday the 4th inst, at the Mansion House. Invitations were issued "to meet the President of the Royal College of Physicians of London, the President of the Royal College of Surgeons of England, and other members of the medical profession," and as this was the first occasion upon which the hospitality of the Mansion House had been extended to the medical profession as such, a very large and distinguished company of guests assembled. We are glad to see amongst the list of guests the name of Mr. Tomes, who seems to have been the only member of the profession present.

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THE DUM DUM BULLET.—Professor Von Bruns (Tübingen) has recently made a communication relative to the bullets used by the British Army in recent warfare. These projectiles were originally coated with nickel, but as it was found that the enemy when wounded were not invariably disabled the nickel coating was filed away from the top of the bullet. In fact, the nickel covering enabled the bullet to pass through the body making only a relatively small wound, but when this covering was removed from the top the lead was flattened out as soon as it struck the body, by which flattening the remainder of the covering was burst open in an explosion-like way, inflicting wounds of an astonishingly severe character. These bullets, which are termed Dum-Dum bullets, are now officially introduced into the British army. In experiments made with them on dead bodies Professor von Bruns found that shots fired at distances of from 25 to 50 metres (from 80 to 160 yards) caused wounds of the skin as large as a hand, the muscles were lacerated, great pieces of bone were torn out, and the wound was filled with fragments of lead and nickel. Professor von Bruns said that these bullets were in accordance with the letter but not with the spirit of the Convention of St. Petersburg, by which the use of explosive projectiles was prohibited. The convention would therefore have to be amended and he would be glad if the discussion of the question by the Surgical Association would have the effect of inducing the German Government to take the necessary steps.

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HORSES' TEETH.—The grinding teeth of horses are comparable to millstones in their action, and if they do not fit accurately the grinding is, cf course, defective. Like millstones, they want dressing when they become irregular. This irregularity is caused partly by growth, but mainly by irregular wear. Horses' teeth grow all their lives. When they become irregular they are not only incapable of efficient grinding, but the sharp points are apt to wound the cheeks. Horses with defective molars generally either bolt their food or "quid" it—i.e. partly chew it, and then drop it in the manger again. The way to find out if the teeth require attention is to examine the mouth. This can be done by drawing forward the tongue, turning up its point, and feeling the molars with the fingers, but one can see, as well as feel, if a gag be used. In ordinary cases rasping—for which a specially shaped and guarded rasp is used—suffices, but for excessive overgrowth the use of tooth shears may be necessary. There is a paragraph going the round of the lay press to the effect that false teeth for horses, which were suggested by the president of a French humane society a few years ago, have actually been invented, and are gaining favour with owners of large stables. We should like to have the statement confirmed on good authority before we believe it, as the obstacles to equine false teeth would seem almost insurmountable.

Dr. Evans' Carriage.—An historic carriage owned by the late Dr. Evans has been offered for sale at the Paris Tattersall establishment, but it was decided at the last moment to retain the vehicle as an item of the estate. In it the doctor left Paris with the Empress Eugenie on Sept. 4, 1870, when he was assisting her to reach England. It is intended by the heirs of the noted dentist to transfer the carriage to the Evans Museum, which is to be founded in America under the clauses of the doctor's will. The vehicle will be temporarily handed over to the care of the old coachman who drove the Empress, her attendants, and the doctor to the coast in 1870, when she was about to embark for England in Sir John Burgoyne's yacht. The vehicle is a landau with accommodation for four persons, and was built in 1867 for the Exhibition. About ten years since Dr. Evans had it re-cleaned and re-embellished, in order to make a journey to Granville over the same ground as that traversed by him with the Empress in 1870. During that long drive he stopped at the same places en route as those selected on he memorable journey.

# Review.

A Manual of Dental Metallurgy. By Ernest A. Smith.
London, J. & A. Churchill, 1898.

Mr. Smith, who is an instructor in Metallurgy in the Royal College of Science, has based his book upon the new Syllabus issued by the Royal College of Surgeons of England, and there can be little doubt but that he has provided just the thing required by the modern dental student. The work is divided into two parts. The first deals with the physical properties of the metals, and there are also chapters on Alloys, Blowpipes, Melting Appliances, Dental Amalgams, and detailed information about the Metals. In part II. an excellently devised scheme of experiments enables the student to make himself practically acquainted with much that he has read about in Part I. This portion of the book will, in our opinion, be found of great service in the Schools. It should be noted that the author takes for granted an elementary knowledge of Chemistry and Physics on the part of his readers.

# Abstracts of British & Foreign Journals.

## ADJUSTING THE RUBBER DAM.

By L. F. Dolebar.

Do all your chiselling, grinding and separating, if possible before putting on the dam. Most persons do not fancy having on the rubber any longer than is absolutely necessary, and without it the coarse debris can be washed out, and afterwards you have not a soiled dam to work over. After cutting or punching the requisite apertures for the exposed teeth, moisten them on the inner surface with soap.

The nicest method is to have in a small glass ointment jar a quantity of ivory paste, made by dissolving one and one-half ounces of ivory soap in one pint of hot water. Many a troublesome adjustment may be avoided by this simple expedient. When in position anoint the lips with white vaseline and place the napkin under the rubber; the patient is thus as comfortable as possible.—*Items.*

# AN AMERICAN ON AMERICAN DENTAL COLLEGES.

Dr. Ottolengui, in a paper on different kinds of dentists, relieves his mind as follows: "The professional quack is a miserable sort of fellow. He takes a notion that he would like to be a dentist. He has little or no education, but in these days that is no obstacle, providing he has a couple of hundred of dollars. Any dental college in the United States will accept him as a student (*vide* proceedings National Association of Dental Faculties). He worries along through college to the examination period, and this he passes, because he wears long white cuffs, and knows how to write a fine legible hand with a well pointed pencil. So he gets through and is awarded a diploma. He does not send that pair of cuffs to the laundry, but uses them at a State Board examination which he passes with the same facility, and with the same lack of knowledge as when going through College. Thus he obtains his license. The College and the State Board have done all that they could for him; they have launched him. But thrown upon his own resources he finds that he has none. So one day his room rent is due, and his lunch ticket is punched full of holes, and if he ever heard any lecture on the subject of upholding the dignity of his profession, or if he ever made any promise to do so, he forgets it all. He hires himself to a quack and becomes one of the "professors" in a "Cash Dental Parlour." Poor devil, is it his fault? Of course he ought to have taken a position in a carpenter's shop, if he had any mechanical skill, or perhaps in a planing mill or machine shop. But his little learning toward mechanics made him imagine himself fitted for dentistry, and when he applied for admission into college *the professors did not undeceive him.* Perhaps a college which only accepted high grade, well educated, refined men as students, would not declare large dividends to its stockholders, but what a work its graduates would do in the world!

*American Journal of Dental Science.*

# Reports of Societies.

## ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

The following discussion on Mr. Rushton's paper on "The Use of Gutta Percha in Conservative Dentistry," which was published in our last issue, took place on April 4th, 1898.

The CHAIRMAN said it had always occurred to him that gutta percha might be improved upon by the addition of india rubber, which did not oxidise nearly so much. A compound of one part of gutta percha and two parts of india rubber had none of the disadvantages of gutta percha. When the first Atlantic cable was laid the insulation material was of gutta percha, and it oxidised to such an extent that the electricity more or less escaped and the current became weakened. India rubber was then introduced in combination with gutta percha, and that seemed to stand the wear and tear of the water very well. Then, again, he thought that with the addition of some antiseptic, such as hydro-napthol, the disgusting odour which followed the use of gutta percha was done away with.

Mr. DENISON PEDLEY said that no doubt the members would welcome very heartily any new preparation which bade fair to be better than those they had in hand. The preparation spoken of by Mr. Rushton as being invented by Mr. Denison Pedley was not his own invention, but that of his father. He had already advocated the use of gutta percha fillings, and therefore there was no necessity for him to say more upon that point, but he might mention that the great disadvantage he had always found with regard to gutta percha was not its want of permanency, but its wearing away so rapidly and its change of colour. An interesting point with regard to the preparation of the gutta percha seemed to him to come from the method of preparation. It was very easy to give a formula of two of gutta percha and three of oxide of zinc and four of china clay, and so on, but the whole thing seemed to him to turn on the method of preparation. He had always been under the impression that by dissolving gutta percha in chloroform some of the value of the constituents were taken out, but he was very glad to hear from Mr. Rushton that that was not so. He should like to ask Mr.

Rushton how after he had precipitated the gutta percha he incorporated it with the materials he advocated. With regard to the permanence of gutta percha, within the last week he had had one patient who had a mesial cavity in a bicuspid which his father filled twenty-three years ago. The stopping was somewhat worn, but it had effectually saved the tooth. Another case was that of a patient who had had a filling in a maxillary incisor tooth which had been stopped by himself when a student some fourteen or fifteen years ago. It had turned dark in colour, and when he saw it he could scarcely believe that it was a gutta percha filling until he began to remove it.

Mr. Baldwin also added his tribute of thanks to Mr. Rushton for his very admirable paper. The gutta percha, which seemed to him to be the best for all round permanent work, as far as it could be made permanent, was the red base-plate gutta percha of S. S. White. It seemed to be the most lasting and to retain its colour very well indeed. Being red it was of course not a natural colour for a tooth, but even in front teeth, if there was a very thin, semi-transparent layer of enamel in front of it, it did not look bad. It did not show dark, and the tooth remained of very respectable appearance. There was something in it which prevented it taking on the brown dirty colour which most of the white gutta perchas took on in time. There was only one objection to the base-plate gutta percha, viz., that it was rather difficult to work. It required rather a high temperature to soften it sufficiently, and it had a tendency to be pulled out by the instrument with which it was packed. Those difficulties could be got over; first, by not using a ball headed burnisher, but an instrument which was practically a very elongated, truncated cone, with a rounded absolute extremity. Another way to make it work easily was to heat it thoroughly until it was perfectly soft, holding it under eucalyptus oil for some ten or twelve seconds until it was sufficiently cold to insert it in the cavity. At that high heat the eucalyptus oil seemed to percolate into the gutta percha and soften it right through. If it was held longer it would become a slushy mass. There was another way of making it easy to work, and that was by varnishing the cavity first with a solution of ordinary resin in chloroform. Sometimes one met with a stopping which was evidently largely gutta percha, but which did not soften on the application of a hot instrument.

Mr F. J. Bennett said that with regard to the formulæ that had been stated, the thing which appeared to him rather extraordinary was that there was the greatest possible variety in the amount of mineral matter combined with the gutta perchas, and yet there was not such great variety in the wearing powers of gutta perchas—at least, they did not vary to the extent one would be warranted in thinking from such an amount as 80 per cent. of mineral matter in some cases to none in other gutta perchas. It occurred to him therefore, it was not so much the amount they contained originally as the method of preparation; or it might be that in those which contained a large amount of mineral matter, when used in a mouth which had a tendency to be acid, the mineral matter might be dissolved out of the gutta percha stopping, and so produce a more porous stopping than if the original stopping had been one richer in gutta percha and poorer in salts. Sometimes a gutta percha was obtained which had not much mineral matter and yet was a very good one. There was one objection which had not been stated, which younger practitioners ought to bear in mind, viz., that it sometimes tended to make the teeth irregular. The swelling of the gutta percha might easily twist a lateral or a central out of position.

Mr. NORTHCROFT understood Mr. Rushton to say he was in the habit of setting crowns with the gutta percha, that was used for impressions. He should like Mr. Rushton to be good enough to say how he got rid of the surplus that must sometimes occur under the gum, because in his experience impression gutta percha was extremely tough and would be extremely difficult to remove.

The CHAIRMAN said that Mr. Bennett's remarks with regard to the soluble additions to gutta percha were important, and he thought that anything added to gutta percha should be insoluble, such as glass or silica. The method he had been experimenting with was using two parts of india rubber and one part gutta percha, and some sulphate of antimony, and practically vulcanizing it by using very hot instruments. He had one case where it really became very hard and answered admirably. He used both sulphate of antimony and sulphur, two parts of india rubber and one part of gutta percha. It did not create the pain one might imagine, because the gutta percha was non-conducting. Whether they would prove useful still remained to be seen.

Mr. RUSHTON, in reply said probably some substance might be found which would not act on gutta percha and disintegrate it in any way, but he had tried no experiments in that direction. With regard to the admixture of gutta percha and india rubber, rubber did not last as well as gutta percha; and he doubted whether it would be a very happy admixture, in addition to which it was much more elastic and resilient, and the difficulty of placing it in the cavity would be very much greater. Mr. Denison Pedley had asked how it was incorporated. It was incorporated simply by warming the pure gutta percha on a slab and adding the powders in small quantities. With regard to the discolouration of stopping, he thought that gutta percha stopping containing resin would be more likely to discolour than those having simply the hydrocarbon. With regard to eucalyptus, he mentioned in his paper that he found a very good way, when he required adhesion, was to warm the stopping itself, dip it in pure eucalyptus, and warm it again, so as to just volatilise the eucalyptus and get an intensely sticky surface. Mr. Bennett's remarks were very interesting. There were two main sorts of gutta percha stoppings, those containing a large quantity of mineral and those containing a large quantity of gutta percha. The latter swelled and discoloured and the other did not swell but wore away. He thought it wore away by the granules of the mineral being very lightly held together by the binding gutta percha, and consequently friction abraded them, which, if the stopping were tougher, it would not do. There was no doubt that stoppings did vary in different mouths, and it depended, he believed, largely upon the force of the bite, and to a great extent upon the situation of the cavity. For instance, a cavity at the cervical edge or in the deep cingulum of a child's tooth was practically everlasting. It would be found that as a gutta percha stopping rich in vegetable matter swelled, it would slightly press the teeth apart. Mr. Bennett was perfectly correct in saying it was such a reliable filling. It never gave the trouble osteo gave. With regard to setting crowns with eucalyptus and gutta percha, the crown should be set first of all on a fusible metal model, and the surplus gutta percha pressed out. Mr. Boyd Wallis's idea about vulcanising gutta percha was one which had passed through his mind, but he did not think sufficient heat cou'd be got with burnishers in the mouth to have a vulcanising action on gutta percha or gutta percha and rubber. In conclusion, he thanked the members for the kindness with which they had listened to his paper.

The Society then adjourned until May 2 after the customary votes of thanks had been passed.

# Dental News.

## ROYAL COLLEGE OF SURGEONS IN IRELAND. DENTAL EXAMINATION.

The following candidates having passed the necessary examination have been admitted Licentiates of Dental Surgery of the College—Mr. J. J. Hayden, Dublin; Mr. F. H. G. Pakenham, Dublin; Mr. T. J. Rea, Belfast; and Mr. A. G. Taylor, Glasgow. The following candidates passed the preliminary part of the examination—Miss H. A. Hall, Manchester; and Mr. J. I. Potter, Kilkenny.

## QUESTIONS SET IN THE RECENT EXAMINATION FOR THE L.D.S. AT THE ROYAL COLLEGE OF SURGEONS IN IRELAND.

May, 1898.

### *Dental Mechanics.*

Mr. Bishop and Mr. Yeates, Examiners.

Three Questions only to be attempted.

1. Describe the effects of various temperatures on steel.
2. Describe two methods of rotating an upper incisor which has its mesial surface looking forward.
3. Describe how you would flask and pack a complete upper case in which the teeth are almost resting on the ridge.
4. Mention the cases in which you would use springs, and your reasons for doing so in each case.
5. Mention the object and mode of application of Truman's gutta percha.

### *Dental Surgery and Pathology.*

Mr. Baker and Mr. Corbett, Examiners.

(Three Questions only to be attempted.)

1. Contrast the signs and symptoms of an alveolar abscess and a dentigerous cyst.
2. Discuss the view that dental caries is an inflammatory process.
3. What forms of micro-organisms are most frequently found, respectively, on the free surface of carious dentine and in the deeper parts?

4. State what symptoms may supervene as the result of difficult eruption of a wisdom tooth in the lower jaw.
5. How would you determine whether a case of so-called neuralgia was due to a dental cause or not?

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## ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

During the April Examinations, the following candidates passed the First Examination for the Licence in Dental Surgery :—Francis Joseph Rhodes, Derbyshire ; David Pollock, Bedford ; Harry Ramage, Edinburgh ; William Cecil Harrison, Lewes ; William Joseph Ferguson MacKeown, Belfast ; Henry William John Hawthorn, Wellington, Salop ; Henry Cooke Watson, County Westmeath ; Percy Lambert Smith, Worksop ; William Alexander Findley, Dumfriesshire ; Alexander Lake Melrose, Edinburgh ; Walter Campbell Shearer, Liverpool ; and Arthur Mitford Brown, Gateshead ; and the following gentlemen passed the Final Examination and were admitted L.D.S. Edinburgh ;—William James Newman Wood, Dumfries, (with honours) ; George Brewis, Gateshead, (with honours) ; Joseph Kenerley Penley, London ; John Park Inglis, Edinburgh ; James Watt Somerville, Balloch ; John Alexander Cairncross, Edinburgh ; James Macleod, Sutherland ; Francis Radley King, Newcastle ; William Mill Irving, Langholm ; John Herbert Gibbs, London, (with honours) ; Alfred Branson, Rotherham, Yorks ; Robert Charles Hillman, Ilkley, Yorks ; Herbert William Kaiser, Birkenhead ; and Henry Eugene Field, Birkenhead.

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## FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

### DENTAL EXAMINATION.

At the April sittings of the Dental Board the following candidates passed the respective examinations :—First Examination—Alexander G. Bauchop, Glasgow ; Wilfred E. Martin, Leamington ; Berte Watson, Glasgow. Second Examination, and admitted Licentiates in Dental Surgery—Samuel Dunn, Glasgow ; Walter Bruce Hepburn, Glasgow ; Herbert Mallinson, Leamington ; Edward Charles Robberds, Birmingham ; Ernest B. Stevenson, London ; Charles J. Kelsey, Bristol.

# ACTION AGAINST A DENTIST FOR MALPRAXIS.

On May 19th, at the Barnsley County Court, Mr. Harold Thomas, sitting as judge, was occupied for a considerable time in hearing a claim by a patient against a local dentist. The plaintiff was Thomas Hirst, miner, of Wood street, Barnsley, and he sought to recover from Arthur Oglesby, chemist and surgeon dentist, Barnsley, the sum of £10, for damages sustained by alleged negligence of defendant's assistant in extracting a tooth.

In opening the case Mr. Rideal said the defendant, in addition to being a chemist and druggist, described himself as a surgeon dentist. Defendant had an assistant named McKenzie, who he believed was a qualified surgeon dentist, and attended to this branch of the business. On the 28th of January the plaintiff visited the defendant's shop, and Mr. McKenzie extracted a tooth at the extremity of the lower jaw. He paid the charge, 1s. He felt a piece of the bone hanging out, and he called Mr. McKenzie's attention to the fact, remarking that it had not been properly drawn. Mr. McKenzie replied that he had abstracted it all right; but looking into his mouth the assistant said it was the jaw bone that was broken, "but it would go back to its place to-morrow." Plaintiff believing that to be true went away; but he afterwards suffered great pain during the night, and the next day went to see Dr. Shine. He was away, but he saw Dr. Pearce, his locum tenens, who was very much surprised to find that the jaw bone was broken, and a piece was protruding in the mouth, cutting the tongue and gum. Dr. Pearce extracted the piece of broken jaw. Dr. Pearce attended the man for several days, and an abscess formed, the plaintiff not being able to resume his ordinary occupation for 19 or 20 days. The doctor's bill amounted to £1 6s., and for the loss of work plaintiff claimed 6s. per day, making £5 14s., leaving £3 for the pain and suffering, making the claim £10, which he considered was a modest one. The plaintiff saw the defendant, and he understood, twelve days after the tooth had been extracted, Dr. Sadler saw the plaintiff, but of course then his mouth was in a different state to what it was when Dr. Pearce examined him. He was prepared to admit that there was the possibility of the most skilful dentist in abstracting a tooth to break the jaw bone, but his point was that when the assistant's attention was called to the fact of a piece of bone protruding it was his duty to have extracted it. He did not do that, and consequently plaintiff suffered pain by the negligence of the defendant's assistant. On the 1st of February plaintiff went to see the defendant, but saw Mr. Mackenzie, who advised him to obtain some borax to rinse his mouth. Subsequently plaintiff saw Mr. Oglesby, who denied that his assistant had broken the jaw bone, and declined to pay the charges of Dr. Shine.

Plaintiff, in the course of his evidence bearing out the statement, stated that he did not sleep for a week after the tooth had been extracted. When he saw the defendant he told him if he did not pay the doctor's bill he would enter an action in the County Court. Defendant declined, and said he would be pleased to meet him there.

Cross-examined: He denied that the tooth was decayed. There was no abscess at the root of the tooth.

Geo. Harper Pearce, registered medical practitioner now at Darton, stated that he was acting as locum tenens for Dr. Shine when the plaintiff came to the surgery. He examined his mouth, and found there was inflammation, and there was a sign of a tooth having been extracted. He subsequently attended the plaintiff.

Cross examined: He admitted the most skilful man might break the jaw bone in extracting a tooth. If the piece of bone had been removed it would have saved the pain and irritation. He also admitted that assuming the tooth had been broken it might work out within 24 hours.

In answer to the Judge witness said it was part of the alveolus that was protruding, but he felt positive it had not worked out, but it must have been caught by the extraction.

For the defence Alexander B. Mackenzie, L.D.S. Edin., assistant to the defendant, spoke to the extraction of the tooth. Plaintiff's mouth was in a bad condition, the jaw bone was stiff, and there was an abscess at the root of the tooth. The plaintiff did not offer any demur after the operation. He denied the conversation sworn to by the plaintiff.

Michael Thomas Sadler, physician, Barnsley, stated that he examined the plaintiff at the request of defendant's solicitors. The result of his examination was consistent with the evidence of Mr. McKenzie. It was possible that the alveolus might be broken by a skilful operation, and if there had been inflammation at the time the tooth was extracted the alveolus might be broken. The break of the alveolus might not be perceptible at the time, but still the bone might naturally work itself through during 24 hours. He did not see anything to suggest an unskilful operation.

The Judge gave a verdict for the defendant with costs.

*Sheffield Independent.*

(Note.—Mr. Arthur Oglesby's name is upon the Dentists' Register.)

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## SUMMARY OF DENTAL REPORTS AT THE CENTRAL LONDON DISTRICT.

| | Inspections with chart | Extractions | | Stoppings | | School | |
|---|---|---|---|---|---|---|---|
| | | Temp. teeth | Perm. teeth | in Temp. teeth | in Perm. teeth | Scaling cases | Reg. cases |
| 1892 93 | 1153 | 649 | 76 | 10 | 316 | 54 | 3 |
| 94 94 | 1245 | 586 | 109 | 29 | 277 | 61 | 6 |
| 94 95 | 1100 | 514 | 100 | 24 | 241 | 51 | 18 |
| 95 96 | 1172 | 448 | 141 | 11 | 289 | 49 | 12 |
| 96-97 | 1142 | 424 | 93 | 6 | 282 | 54 | 7 |

Remarks.—Rather more than 100 of the Extractions were done under $N_2O$. Of the Stoppings, about half-a-dozen were made with cohesive gold, and nearly all the rest with copper amalgam, principally Sullivan's, and in Molars.

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# Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

### SMITH'S DENTAL METALLURGY.

There are several parts of this useful book which need correcting and revising in the next edition. The rolling mills illustrated on page 63 are, for rolling ingots, unsafe and very unnecessarily hard to work, they are designed only for the lightest jeweller's scrap work. The proper pattern for plate rolling has a four armed handle on one side, and a rachet handle on the other. With this the whole weight of the body can be used continuously without strain, and there is no risk of going head over heels when a wide plate jumps out at the end; the central pillar support is too weak and unsteady, four legs are necessary.

Purification of sweep, page 110. This can only be done economically on a large scale, with special furnacef, and it is out of question in any ordinary workroom, the purification of filings, an important matter, is apparently overlooked, and the process of boiling in nitric acid, and melting, is so exceedingly simple and certain that it should find a place in the next edition.

Bismuth amalgam, page 133. This metal in a very small proportion, gives a most extraordinary smoothness and plasticity to all amalgams containing silver and tin, without injuring their properties in any way. Although mixed with a small proportion of mercury, to pack firmly under the instrument, so perfect is its adaptability that it can be packed against a flat surface of mother of pearl, and when hard the microscopic details of the surface which cause iridescence in the pearl, are perfectly reproduced. Owing to this peculiarity it cannot be mixed or used in the hand, as it works into the pores of the skin, and cannot be removed without great difficulty.

Gold amalgam, page 135. A formula for this is given under my name. No such alloy, and no alloy having properties in any way resembling this, has ever been made by me, except in private experimenting. It is probably an American piracy sold as mine, and its omission in future is desirable.

Spheroiding of Amalgams, page 139. This is stated to be "probably due to a change of volume." A few experiments will prove that this is not the case; when there is a decided change of volume, as with precipitated silver amalgams, packing in tubes will show that there is no spheroiding; the whole surface lifts, the edges rising above the level of the tube to practically the same extent as the centre. Where true spheroiding occurs. it will be found that as the centre rises the edges draw inwards, and the plug becomes leaky, the space is easily seen with a magnifying glass.

Quantity of Mercury needed. A "true compound" is never formed; except by pure accident the analysis of any plug shows no approach to the atomic weights or proportions. The mercury should be used simply to give a cohesive skin to the grains, to enable them to weld together under pressure, and should never be sufficient to permit of change of form afterwards, amalgams containing silver and tin should be worked like cohesive gold if permanence is required.

Preparation of Alloys for Amalgams, page 148. Instructions are given that the silver and platinum should be melted first. This error, originated by some person who has a very insufficient knowledge of the affinities of the metals, has since been copied without question. Silver and platinum are difficult to combine, and still more difficult to keep uniform. On the contrary, platinum and tin combine chemically with the evolution of intense heat, at a comparatively low temperature, forming a definite crystalline alloy which combines easily with silver at a temperature below the melting point of the silver. In this manner the alloy can be made at a temperature not greatly exceeding the fusing point of the most fusible of the metals used, and overheating is entirely prevented. Want of knowledge on this point no doubt has caused the extraordinary statements as to the inertness of platinum in amalgams, it never got into proper combination, or was probably all in one end of the ingots.

Purification of Zinc, page 185. This metal becomes thick by repeated meltings, and the oxide held cannot be removed by ammonium chloride as stated. The only method which is at present known is, to heat the metal to incipient redness, throw a small quantity of *strong* hydrochloric acid on the surface, and stir with a stick. About two tablespoonfuls will render a large ladleful of thick zinc perfectly fluid, this, however, does not remove iron which can only be separated by redistilling the zinc, which, of course, is impracticable on a small scale. In calling attention to these points my only desire is to increase the value of a useful book, my own work on the same subject is in many points out of date, and as I have neither the time nor the desire to re-write it, it is a pleasure to find that the matter has been taken up, and that English students will not need to go to America for their text-books on this subject.

THOS. FLETCHER.

*To the Editor of the "British Journal of Dental Science."*

Dear Sir,—Now that the subject of phosphorus necrosis is receiving such serious attention from the Home Secretary, will you allow me through your valuable Journal, to ask how it is possible to mitigate, let alone prevent, this disease when dippers are allowed to go about their work with teeth which are the site of extensive caries and putrid pulps? That such is the case I am prepared to prove. Here unquestionably is an urgent need for a dentist, not only to examine the teeth of each dipyer before being admitted to work in the factory, but also to make periodical examinations, and treat any cases of caries that may arise. I understand that such dental appointments have been made in France, and with good results.

I am,
Yours faithfully,
FRANK M. FARMER.

53, Wimpole Street, W.

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*To the Editor of the "British Journal of Dental Science."*

Dear Sir,—In your last issue, May 15th, there is an article "Foreign Doctors and Dentists in Italy." It is an extract from a communication to the "Times." It reflects upon the capacity of Italian Dentists in general. It is not correct and is unjust to them. As it is the opinion of a layman who, in all probability, cannot know much of the capacity of Italian practitioners, I think it necessary to bring it to the notice of our profession, that it may not be taken for granted that the "great inferiority" of the Italian dentists spoken of in the article, really exists. At all events, this opinion is not held by Dentists, foreigners to Italy, some of whom have been practising in the country for many years, (the writer for nearly fifty).

The spirit of association is wanting among Italian Dentists, and has prevented them uniting and forming schools. In this they merely follow the current of usage in this country, but all Italian cities possess very worthy representatives of our Art. They have a National Odontological Society which has its annual meetings, and also some of the cities have their local Societies. They have two or three Dental Journals and they are very willing to adopt any improvement and novelty, in fact, Dentistry in Italy has advanced very much during the last twenty or thirty years.

I have thought it only fair and proper to bring this to your notice, and I shall be obliged, if you think it worth notice, if you will publish my letter in your Journal.

I am, dear Sir,
Your very obediedt servant,
CHARLES WILLIAM DUNN.

Florence, Italy, 9, Via Tornalinoni.
May 24th, 1898.

*To the Editor of the "British Journal of Dental Science."*

Sir,—I have lately met with an anomalous case, which has subjected me to considerable inconvenience, not to say loss, and you will no doubt show your usual willingness to expose any wrong doing to the prejudice of any one of our profession. I put the matter before the readers of your Journal, with the hope to elicit an opinion on the subject, as to whether any other course is open to me.

Some years ago I took an Articled Pupil and trained him thoroughly in all that pertained to Dental Surgery proper. After being with me some three years, before the passage of the Dental Act of 1878, I paved the way for him to take his examination at the Royal College of Surgeons, Lond., which he did, obtained his diploma, and made a large and successful practice for himself. My duties at that date engrossed so much of my time that I could not possibly attend to teaching interests. Of late, however, my professional work has been lessened, but feeling myself competent to undertake a small class of some four or six pupils, I applied to the Secretary of the Royal College of Surgeons, London, that my School be re-instated; to show that my application was entertained, he required from me the size of my Lecture Rooms, etc. I was then asked to wait fully four months in order that my application be submitted to the Board of Directors at their Annual Meeting this month. I was led to expect from the foregoing that my little School would be recognised, but after spending a considerable sum in getting the premises fitted up, I have just heard that they consider another school here to be undesirable. In all fairness to me, am I not entitled to compensation, or is it a case for the Privy Council?

Yours obediently,
WILLIAM R. TUCK.

Truro.

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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British Journal of Dental Science.

No. 730. LONDON, JUNE 15, 1898. Vol. XL.

# ON A METHOD OF PROLONGING ANÆSTHESIA IN OPERATIONS IN THE MOUTH.*

By Mr. Alfred Coleman.

The matter I have the pleasure of bringing under your notice to-night formed the subject of a paper I recently read before the "Society of Anæsthetists." Had there been no Society I should most certainly have sought the privilege of bringing it before the members of this: firstly, because I have, been for a very considerable portion of my life so intimately and I may add so agreeably connected with your Society, and secondly, because in the past, for many years, almost all the great advances and improvements in the department of anæsthetics were made known to the profession, generally through the medium of the Odontological Society.

I trust it will not be thought that because, at the solicitation of their editors, a description of my appliance and the mode of its application has appeared in several of the medical and dental journals—and I must here state that I hold your esteemed secretary, Mr. Butcher, responsible for its again being brought under your notice—that I unduly estimate the value of what I have introduced. At the same time, I have ground for believing that when the instrument is, as it can be, considerably improved, it will supply a desideratum long felt by myself, as doubtless felt also by most of my professional brethren, viz., the prolongation of anæsthesia, and especially by one so safe as nitrous oxide in operations on the mouth.

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* Read before the Odontological Society of Great Britain.

The administration of anæsthetics through the nose is no novelty. I believe the first to try this method was the late Sir B. W. Richardson, who attached a small tube to a chloroform inhaler and inserted one end of the tube into the patient's nostril; this was quite in the early sixties of the present century. I soon adopted his idea, but with a thin metallic instrument with tubes passing into each nostril. We neither of us obtained much advantage from this method until I added to mine an air syringe, and thus forced a mixture of air and chloroform into the nostrils. This instrument effected its object perfectly in the matter of keeping up the anæsthesia, but it was certainly anything but a safe method. The amount of air introduced was regulated, chiefly, by the thumb of the hand which compressed the air-ball, and which more or less covered the orifice of the inhaler, and a very rule-of-thumb process it was. Ether I have also used in a somewhat similar manner, but chiefly in New Zealand, but with nitrous oxide I have only recently met with a success that I considered warranted me in bringing my method before the notice of the profession. My appliance consists of a nose-piece adapted to fit accurately over the base of that organ and which communicates with a very flattened tube, made to rest evenly upon the forehead. To this tube, is connected a rubber one of good dimensions which passes over the patient's head and is attached to a very oval-shaped gas bag, a lightly constructed two-way stop-cock and an outlet valve intervening; the gas bag being connected with the gas bottles in the ordinary manner. I certainly think it would be desirable that the base of the nose-piece should be provided with a rubber air-pad, like the ordinary face-piece, but of a much reduced size, for although that before you fits remarkably well over most noses, still, when firmly pressed upon, it is not comfortable; also the whole should be constructed of a much lighter material—indeed you will readily perceive upon examination that that portion of the instrument which may be considered original bears the indelible stamp of ‘home manufacture.

In applying the instrumant, the nose-piece having been placed *in situ*, an air-padded face-piece large enough to completely cover both nose-piece and mouth, and having only an outlet valve, is placed upon the face and gas from the bag turned on, the patient in the interim having breathed air through the nose from the opening in the two-way stop-cock. When anæsthesia is fully established the face-piece is removed and the operation proceeded with, whilst by slightly distending the bag beyond its ordinary capacity the patient cannot avoid continuing the inhalation of nitrous oxide. Through the kindness of Dr. Buxton, Dr. Hewitt and Mr. Paterson, who was recently one of the anæsthetists at St. Bartholomew's, a number of experments have been carried out for me, and the last mentioned has kindly furnished me with the following short report of fifteen administrations. He says:—

I have used your apparatus in fifteen dental cases, the following being the durations of anæsthesia:—

| | Mins. | Secs. | | Mins. | Secs. |
|---|---|---|---|---|---|
| Case No. 1 ... | 4 | 0 | Case No. 9 ... | 3 | 40 |
| ,, ,, 2 ... | 2 | 50 | ,, ,, 10 ... | 1 | 20 |
| ,, ,, 3 ... | 4 | 0 | ,, ,, 11... | 0 | 50 |
| ,, ,, 4 ... | 1 | 50 | ,, ,, 12... | 3 | 40 |
| ,, ,, 5 ... | 1 | 40 | ,, ,, 13... | 5 | 0 |
| ,, ,, 6 ... | 1 | 30 | ,, ,, 14... | 3 | 10 |
| ,, ,, 7 ... | 1 | 10 | ,, ,, 15... | 1 | 10 |
| ,, ,, 8 ... | 1 | 30 | | | |

"'In all these cases the administration could, I believe, have been continued for a longer period had it been required. The longest case was exactly five minutes, and during this time thirteen teeth were removed, several of them difficult extractions.

"'(Signed) HERBERT J. PATERSON.'

"In administering gas and ether and air through the same nose-piece I use much the same ether apparatus that I employed for many years at the Dental Hospital for giving gas and ether only, but now, besides the gas bottle, I have connected with it a 'Fletcher's foot blower.' I first give the patient nitrous oxide, and when rendered partially unconscious, divert the flow of gas through the ether, and when narcosis is fully established and the operation about to be commenced, turn off the gas and pump air by the foot bellows through the ether, and thus continue the anæsthesia by air and ether alone, effecting of course a very large saving of gas, which my friend Mr. Paterson informs me was very considerable in the cases named in his report. During my experiments with the ether arrangement I was led to try, with a modification of that instrument, a plan for administering chloroform in absolutely definite percentages of admixture with air, on the plan of our late esteemed Mr. Clover, but with a far less cumbrous apparatus than he employed. I do not see any insuperable difficulty in carrying out this object, but it is a matter that will involve some time and labour before such an arrangement is rendered perfectly reliable.

# A FEW LITTLE TIPS IN DENTISTRY.*

By Mr. F. MACKENZIE.

Mr. President and Gentlemen,—I think the title of my paper requires little or no explanation. When I consented to read a paper before this Society I wondered what subject would be the most interesting and the most instructive to my fellow-students. As I knew a few little "tips" myself, I thought that if I could collect a few more, I might make a fairly respectable paper. I do not claim originality, for most of my "tips."

Some of them are merely details in mechanical dentistry, but we are all aware that the sum of the details makes all the difference in the success of the thing to be done, and in no profession does this apply more than in dentistry.

I will begin with a few remarks on mechanical dentistry.

It seems a very simple thing to back a tooth, but it is a process which really requires great care if the best results are to be obtained. The backing should lie perfectly dead all over the tooth, and the holes through which the pins pass should not be too large. If there is any space between the sides of the pins and the plate, the borax and solder will run between, and the tooth is liable to fracture. The pins should be bent from the free end, and only one pin bent at once. Bend them side by side, and parallel to the cutting edge of the tooth; there is no need to rivet them, but they may be filed down a little before soldering.

Great care ought to be taken to prevent the borax from getting between the tooth and the backing, or on the cutting edge of the tooth. The borax sticks to the tooth, and if one grinds it off, it generally chips away and brings a piece of the tooth with it. If the borax is allowed to get on to the tooth, it very often results in small cracks running down the tooth. See that the teeth are quite clean before investing; if hard wax is allowed to remain on, the tooth will discolour when soldering. It is better to scald the plate with hot water, when invested, to remove the wax and make everything quite clean. Before investing, a slight space must be made between the teeth to allow for the contraction of the solder, which is inclined to bring the teeth inwards, and if the teeth are touching before investing, the contraction often fractures them.

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* A paper read before the Manchester Dental Students' Society, Victoria Dental Hospital.

In preparing a plate for bands or wires, one is apt occasionally to file out a little too much. Also in restriking an old plate, a space is left between the plate and the band when fitted. If the space is very much, a piece of plate ought to be fitted in when preparing the plate on the model, but if it is not very much, the piece may be fitted in when the case is invested.

The main point is to fill up the space, however small, with plate, and not with solder, otherwise the bands will draw away with the contraction of the solder, and consequently will not fit the teeth.

The same applies to soldering teeth, the backings of which do not reach down to the plate.

In a plate case, the plate ought to extend under the teeth, and the teeth ought to be fitted accurately to the plate. If there is a space between the bottom of the tooth and the plate, the pins alone will have to stand the strain which is afterwards put on the tooth in mastication.

Never grind artificial teeth with a dry stone, if this is done, small pieces are apt to chip out, and small cracks appear at the neck of the tooth where it has been ground. These are not noticeable sometimes, but if the tooth has to be soldered, these cracks often extend and involve fracture of the tooth. It also happens sometimes when the tooth is vulcanized.

If it is desired to get an excellent model from an impression in which there are natural teeth, it may be done in this way: Mix the plaster a little thinner than usual, and pour it in at the top of the palate, taking care that the plaster runs down the sides of the teeth and not over them; at the same time the impression must be tapped on the bench or basin in the usual way. After the plaster has covered the whole of the impression, invert it, and by several sharp jerks, throw all the plaster out again into the basin. If the plaster is not too thick this will be readily done, and it will leave the impression with a very thin coating of plaster all over it. If the plaster has not run all over and into every corner, a few taps more will make it do so. Now let the plaster settle to the proper consistency, and fill in the impression in the usual way. When set, the teeth on the model will be found to be perfect and free from bubbles. It will improve the hardness of the plaster if a pinch or two of alum is mixed with it, and it will also hasten its setting. It is also much better for vulcanizing on than a model in which salt has been used.

Before casting an ordinary impression it is a good plan to give it a very thin coating of oil. When the composition has to be removed from the plaster, it will readily part from it, and will leave the plaster quite clean.

When a duplicate model has been cast in the compounds for that purpose, it always comes out very soft and chalky. If placed in boiling water for a few minutes, the plaster will regain its usual qualities.

Models which have been heated, to be dipped in stearine or any other hardening agents, should be dipped while fairly hot. They should not be allowed to stand on the bench after once being heated, because they absorb the moisture out of the atmosphere. It is very injurious to them to heat them once or twice before dipping.

When models have been dipped they should not be placed in boiling water to remove wax. They should be gently and gradually heated in the bunsen flame, and the flame ought to be kept as much as possible on the wax and not allowed to burn the model.

When cutting off the projecting ends of the pins, which are put in to strengthen plaster teeth on models, hold the model very lightly with the left hand, and take hold of the pin with the cutting-nippers. When actually the pin, the model should not be held at all with the left hand, but of course it must be placed immediately under to catch it, when the pin is cut. If the model is held firmly with the left hand the tooth is liable to be split.

There are plate cases to be made for mouths in which there are many prominent roots standing, and very often the patients will not have the roots touched. In such cases after taking the impression, fill in the roots with amalgam, and take care that the amalgam is left standing above the level of the surrounding composition, and a little roughened. Give the amalgam an hour or two to set and then cast the impression in the usual way. In such cases it will be found that the roots will not be easily rubbed down, which is very often the case when the model is cast all plaster.

This method is also useful when it is found convenient to make a crown to a model.

After soldering a plate case with teeth on, the investment may be quickly removed from it in this way. Invert it, and pour oil on to the back of the investment, this will make the investment quite rotten, and it may be easily removed from the plate. Plenty of oil must be used, and care taken in separating the investment from the plate, otherwise teeth or bands may be broken off. This method may be safely used after the red heat has disappeared, and it is a great saving of time when a patient is waiting for a repair.

To take an impression of an unusually high arch with an ordinary tray, proceed in this way: Warm the tray a little, and build up in the centre with a little composition. Then try it in the mouth to get something like the height of the arch, and cool. Warm the entire surface again, and fill in with composition. The impression may then be taken in the usual way.

It is often difficult to remove the impression of the edentulous upper, or in fact af any case. Ask the patient to cough, and this will raise the soft palate and the air will be admitted between the composition and the palate. The impression may then be readily removed. The nauseous effects of the composition may generally be overcome by bringing the patient's head well forward after the impression has been got into position. To remove an impression in a lower case, insert the index fingers one on each side and press the cheeks outwards from within.

In edentulous cases, or where there are very few teeth left in the mouth, it is often very difficult to get a correct bite. Get the patient to throw his head well back and ask him to swallow. He is then bound to articulate the lower correctly with the upper. Repeat the process two or three times, and it will be seen that the patient will bite the same every time. The important point is to get the patient's head well back.

When an artificial tooth, which fits on to the natural gum, is broken off a plate, or when a natural tooth is broken off, and a new tooth is to be added to the plate, proceed in this way. We will take for instance, a case in which the incisors are left in the mouth, and the patient wears a plate for the back teeth. Supposing one of the centrals has broken off. Prepare the root if necessary, and with the plate in the mouth press a small quantity of composition or wax in the space, and carry it over at least one tooth on each side. When set, remove the plate and the small impression from the mouth together.

If necessary, the impression must now be waxed in position to the plate. Select a tooth to match the remaining teeth in the mouth, and the case may now be proceeded with in the workroom. Grease the plate slightly, and run in a small quantity of plaster when required,—there is no need to cover the whole of the palate. When the plaster is set, remove the impression by gently heating it in the gas, or in hot water if it is a metal case; the plaster also will readily leave the plate. Now fit the tooth in the usual way, and prepare the plate either for vulcanizing or soldering as the case may be. If the tooth has to be vulcanized on, it is safer to do so on the small model for obvious reasons. By this method much time will be gained in the surgery, and the patient will be saved the trouble of having the tooth fitted to the mouth.

A very good and quick method of fastening a tooth on to a vulcanite case for temporary purposes is this: Prepare in the usual way as for vulcanizing a tooth on, but make quite sure that it is well dovetailed. Now melt a little fusible metal and pour in round the pins while the tooth is held in position by the finger. Smooth down with the finger end, and make it level with the surrounding parts. This method is very useful when there is plenty of room to get a good undercut.

In packing vulcanite cases as little of the pink rubber as possible should be allowed to come in contact with the gum. The pink rubber is largely charged with colouring matter, and this irritates the mucous membrane of the mouth. This is especially the case in full lower cases, and all cases ought to be lined if possible, with a thin layer of black, which is the purest rubber.

In packing white rubber between teeth which are to fit on to the natural gum, do not let it come in contact with the pins of the teeth. The white rubber is one of the soft rubbers, and if vulcanised round the pins, the teeth will be more liable to be forced out than if red or any other hard rubber envelopes the pins.

The rattle of a full upper and lower case may be overcome somewhat by this method. Build up the case in the usual way in wax, but in packing, remove the four end molars and pack white rubber in instead of the teeth. Thus, there will be four pads of softer material than the teeth, which, when they come in contact, will reduce the rattle.

When packing gum block cases, it is better to pack them as soon as possible after having boiled out the wax. The plaster seems to undergo some change, which allows the joints to open when the flasks are well heated. There are various ways of preventing the rubber from getting between the joints; one of the best is to get the joints fitted so that the whole of the side of the one block comes in contact with the whole of the side of the other. If only the labial edges of the blocks are in contact, a wedge-shaped space is left behind, through which the rubber often contrives to run, no matter what is put between.

When the case is built up in wax with all the joints fitted, each ought to be taken off in turn, and all traces of wax and dirt removed from the joints. Then wax on again, but leave spaces opposite each joint, so that thin plaster, or osteo, or whatever is used, may be placed in the joint. The object is to keep the wax out of the joint entirely; finally wax up and put the case in the flask.

A very good strengthener may be made for a lower case from a gold spring (the springs used for full upper and lower cases). Draw the spring out a little, so that there is a space between each coil of the wire, and pass a piece of German silver or other wire from end to end. Bend to shape and insert in the usual way. It may be made in a few minutes, and it is not unsightly if exposed.

If a large quantity of vulcanite is unavoidable for a case in which there has been much absorption of the alveolus, we all know that the thick part will be porous when vulcanized. To avoid this, put in small pieces of vulcanite when packing in the rubber, and get in as much as possible, especially in the middle of the thickness under the teeth. In some thick lower cases it is even safe to put in one or two long thin diatoric teeth. Perhaps the pieces of vulcanite are the safest, because if they are met with, they may be filed down, and will scarcely show, if they are the same colour as the new rubber.

When removing teeth from an old vulcanite case, put a little wax on when heating in the gas. This will soften the vulcanite and render removal of the teeth easy. Another method is to boil the plate in water until soft; this will do away with the unpleasant smells with which we are all familiar.

When zinc and lead have become mixed, make a cone-shaped mould in the sand and pour in the melted metal. When the zinc has set, lift out of the sand, and the lead, still melted, will remain at the bottom; or leave the whole mass to set, and cut off the lead afterwards.

For cleaning natural teeth use a solution of Castile soap instead of water, or aromatic sulphuric acid. It is much better for the gums, and the irritation is not so great.

To remove the disagreeable odour of the hot air syringe, which comes from the methylated spirits in the lamp, occasionally pour into the bulb of the syringe a small quantity of oil of cloves, eucalyptus oil, or eau de Cologne.

After a dressing or temporary gutta percha has been taken from between teeth, the gum often bleeds a little. In mild cases of hæmorrhage from this source, apply a pledget of cotton wool dipped in strong carbolic acid, and then in tannic acid; if held firmly on to the bleeding gum for a short time, it usually arrests the hæmorrhage. Glycerine and tannic answers the same purpose.

When using carbolized resin for covering an arsenic dressing or for any other purpose, use Fossiline, or any other kind of white filling powder with it. The best way is to have a little of the powder on the mixing-slab, and after dipping the cotton wool in the carbolised resin, roll it on to the powder and thoroughly incorporate the two. This will have a two-fold effect; the carbolized resin will be prevented to some extent from washing out with the saliva, and the powder will also harden the dressing, thus ensuring less risk of its being disturbed in mastication.

This kind of dressing answers quite as well as temporary gutta percha for many cases; it is easily applied, and it is much cheaper.

The following method is useful for gold filling in an incisor, in which the corner of the tooth is broken oft, and it is impossible to get an apposing point. Prepare the tooth for filling in the ordinary way, either for wedging, or with retaining pits, then on the lingual wall cut out a small key or dove-tail, taking care that it is in the strongest part, not too near the cutting edge of the tooth, or too near the base of the cavity, which in either case would leave a weak part in the tooth. The part where the opposing point ought to be need not be taken into consideration in preparing the cavity. Then proceed to fill the base of the cavity in the usual way, and build the gold up to and into the key, finish and polish. The filling will be quite as firm and perfect as if it were filled by means of an opposing pit. The tooth ought to be strong enough to bear the cutting out of the key, otherwise it will soon come to grief, but in suitable cases the tooth and filling ought to last a long time.

Scratches and stone-marks on mouth mirrors may be removed by polishing them on a felt wheel on the lathe; use plenty of wet pumice and plenty of pressure, but do not allow the mirror to get hot.

Perfect adhesion of gutta percha to the walls of a cavity may be obtained by wiping out the cavity with copal ether varnish, or chloroform.

Cement fillings ought to receive a coating of copal-ether before allowing the saliva to get to them.

When your smooth nerve-bristles get so smooth that cotton-wool will not stick to them, rub with sand-paper.

Insane people and vicious children often refuse to open their mouths. In such cases press a finger upwards under the floor of the mouth behind the angle of the lower jaw, where the inferior dental nerve enters the foramen. That will have the desired effect. Another way is to press the bottom lips with the thumb against the lower incisors until it causes pain, then push the lip over the teeth. If the patient closes his mouth he will bite his lip, although the thumb will intervene between his lip and the upper teeth. It is perhaps unnecessary to add that these extreme measures ought not to be used in cases of nervousness.

Save all your surplus amalgam and roll into small pellets of different sizes while soft. These will prove very useful subsequently, when filling large cavities, by embedding them along with the soft amalgam. It reduces the tendency to shrink, which all amalgams have, and it is a saving of material.

I must now thank you, gentlemen, for your kind attention and patience, and if I have succeeded in giving each one of you only one little tip I shall be very pleased.

British Journal of Dental Science.

LONDON, JUNE 15, 1898.

## CONSERVATIVE DENTISTRY.

We hear a great deal now-a-days about Conservative Dentistry, and undoubtedly with improved instruments, elaborate processes and increased knowledge of antiseptics, many thousands of teeth are annually saved, which a few years ago would have unquestioningly fallen a prey to the forceps. But in spite of all this we are compelled to affirm that in many cases teeth are sacrificed which ought to be saved, and the question which each of us ought to put to himself is whether we are doing all that lies in our power to preserve the natural teeth of those committed to our care?

As a rule, extraction is not a difficult process; when performed skilfully it earns the gratitude of our patients, it is a quick way to relieve pain, and when once the tooth is out it can give no further trouble. Very often the patient wishes it, nay, insists on it, and it may require a considerable amount of firmness and courage for us to refuse if we are convinced that it is best for our client that the tooth should be saved, especially since the advent of Nitrous Oxide Gas, which has robbed extraction of much of its former terrors. In fact many dentists affirm that gas and vulcanite have done much to favour the wholesale extraction of teeth. But it must be borne in mind that no artificial teeth, however well made, are as efficient as the natural ones, though, of course, they are better than decayed ones, and much better than none at all. If perfect mastication is essential to perfect health, then artificial teeth must retire crest-fallen from the contest. Normal teeth and jaws can close with a force approximating two hundred pounds, while the ordinary force used to masticate beef muscle is about seventy or eighty pounds. Artificial teeth can only exert a pressure of about fifteen or twenty pounds, they have as a foundation the sentient and yielding gum, and even if this were perfectly hard and without sensation, a pressure of seventy pounds would soon destroy most artificial dentures. The question of cost of course, is a very important factor with most people. It is cheaper to have teeth out and artificial ones supplied than to have the teeth preserved by filling. Besides there is a strong prejudice in the minds of many of the public against having their teeth filled, for the simple reason that they or their friends have tried the experiment and it has been a failure. The fillings when done carelessly, or in ignorance as to the condition of the teeth, have either come out or have caused the patient intense suffering, leaving their last condition worse than the first. The consequence is that they determine to have no more stopping done, but to wait until they can go in for a "clearance," and a set of teeth which do not ache.

It is our chief duty to preserve the natural organs as long as possible, and to educate our patients to aim at the same ideal. We should not only endeavour to fill our patients' teeth so that the fillings stay where they are placed, but also to use our best judgment as to the most suitable filling to be used in each individual case, taking into consideration the state of the mouth, the position of the cavity, the approximation to the live pulp, and to make sure in many instances as to whether the pulp be alive or not, knowing that in certain cases a stopping is the very worst treatment the tooth can receive, unless it be properly prepared beforehand. We know that this is a question of time and of fee, but the public is becoming awake to the fact that teeth can be saved, that extraction is not the only treatment, and they will become more and more willing to patronise the man who saves their natural teeth, rather than the one whose instruments consist of the forceps and the impression tray.

Dental Examination Papers.—"F.R.C.S.," in the *British Medical Journal* complains of some of the questions asked of dental candidates. For example in a recent examination paper the following questions were asked: (1) Describe the structure of the skin, and give the functions of its glands. (2) What affections of the tongue may be met with in the various stages of syphilis? Give their diagnosis and treatment. "F.R.C.S.," does not hesitate to express the opinion that these questions are altogether irrevelant and outside the scope and purpose of dental education and practice. He goes on to say, "I do not, moreover, see what dermatology has to do with dentistry, still less what dentistry has to do with the fœtal circulation and the os innominatum. I do not deprecate either the thoroughness or severity of any examination, especially where public interests are concerned, but let examinations be conducted upon their own lines and in fairness to candidates. Such questions as I have indicated are not fair or legitimate, but are questions suitable only for a medical qualification. If dentists are expected to diagnose and treat syphilis in its various stages, is it not a distinct and direct invitation to them to transgress the Medical Act? The profession already cries out, and with reason, against irregular practitioners, but here under the ægis of a Royal College are to be found the transgressors. I think it time the attention of the Council of the College was directed to this matter."

It is absurd to call the first question "dermatology," and furthermore no student can understand the formation of a tooth until he knows the structure of the skin. With regard to the second question, it is most important for the dentist to be familiar with the appearance of the different affections of the tongue, of which syphilis is one of the most important. He often has the first opportunity of recognising a lesion in the mouth, and of advising his patient to seek proper treatment. If wise he would not attempt to treat the case himself, though there is no reason why he should not know how to do so. The questions in the "General" papers at the College are often academic rather than practical, so as to test a man's general knowledge, but these are also supplemented by searching questions and practical work on purely dental subjects.

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COMPANIES AND DENTAL PRACTICE.—Our sapient legislators in drawing up the Companies' Act left a back door by which totally unqualified persons could carry on Medical, Surgical, and Dental practice at their own sweet will. This fact was brought before the General Medical Council by a member *in camera*, who pointed out the valuable opportunity afforded by the occasion of the Companies Act Amendment Bill for providing a remedy for such a scandal. The Council afterwards gave leave for the motion on the subject passed *in camera* to be placed on the minutes. It is as follows:—"That the President, Mr. Tomes, and Mr. Horsley be a committee to take such steps as they deem most effective to induce the Government to insert a clause in the Companies Act Amendment Bill, now before Parliament, with the object of preventing the registration of companies to carry on medical, surgical and dental practice." The General Medical Council will do good service if it succeeds in this matter.

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ABSENCE OF SOFT PALATE AND CLEFT TONGUE.—Dr. Helsham of New South Wales reports the following interesting case: "I was called to see an infant two days old, as the mother noticed the child was unable to suck, and fluids returned by the nose when given by the mouth. Examination disclosed complete absence of soft palate, the position of the palate being represented by a large oval, window-shaped opening, through which the roof of the naso-pharynx, with the projecting vomer, could be seen. The free edge of the opening was attached by a fold on either side in front of the tonsil to the lower jaw, behind the position of the last molar tooth. The tongue was completely divided from behind forward to the extreme tip, where the two parts united, and were anchored short behind the gums. On crying, the two halves rose in two ridges, almost meeting along their free borders, otherwise there was little or no movement in the organ. Father a native of Japan, mother an Australian. Child 8½ months, very small, but otherwise normal." He does not say whether operative interference was necessary at the time, or would be advisable eventually.

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Odontological Society of Victoria Annual Meeting. —The second meeting of the Odontological Society of Victoria was held in the Lecture Hall of the Australian College of Dentistry, on Thursday evening, 24th March. Mr. Donald Mcgregor, President of the Society, occupied the chair, and there was a fair attendance of members. The hon. secretary, Mr. W. A. E. Graham, presented the annual report, which was read by the president. It showed the numerical strength of the Society to be about the same as that of the past year, but regretted the apathy shown by some members in the work of the Society. However, he regarded this as being due to the many calls on the time of members as a result of the establishment of the Dental College. The financial statement was presented by the hon. treasurer, Mr. J. Iliffe, and showed a satisfactory condition of things in this respect. The total expenditure for the year, including a donation of £20 to the funds of the college and hospital, was £30 3s. ; and the balance to be carried forward to the year 1898, £22 8s. 8d. The president, in retiring from office, delivered his annual address. He reviewed the work of the past year, and expressed his regret at the lack of enthusiasm on the part of members, and the comparatively small attendance at meetings ; at the same time, he admitted that there had been many claims on the time of some of the members during the past year, and this had certainly affected the attendances. He suggested that a part of the funds should be employed in the purchase of appliances which might be brought out for new operations or methods, so that an opportunity might be afforded members of making a thorough test of these things before adopting them. A reference was made to the urgent necessity for an amendment of the present Dental Act, and the hope was expressed that the next session of Parliament would see this work accomplished. In concluding, Mr. McGregor hoped that the coming year would be a very successful one in the history of the Society, and that there would be a large increase in the number of members.

A LINK WITH THE PAST.— Dentists and anæsthetics have been closely connected both in their discovery and their use. Mr. J. S. Grant of Aberdeen, chemist and dentist, has lately died suddenly, and is another instance of the above assertion. Years ago he proceeded to Edinburgh, where he entered the service of Messrs. Duncan and Flockhart. While there he was employed in compounding the chloroform used by Sir James Simpson in his experiments with that drug, a fact of which he was rather proud, and used often to relate with considerable satisfaction. He afterwards set up in business in Aberdeen as a chemist, but about thirty years ago he removed to Brechin, where he set up as a dentist, a profession which he practised till his death.

DENTISTS AND BOARDS OF GUARDIANS.—At Chesterfield the Board of Guardians passed a recommendation of the Industrial Schools Committee to the effect that Messrs. Smith, Slack & Furness, dentists, be written to for their terms for examining the teeth of the Industrial School children, and how much extra for drawing and stopping. We hope that the Board of Guardians has received, and is acting up to the advice and suggestions of the Local Government Board published in this JOURNAL, on September 15th of last year. One of the recommendations included in that document was, "all payments for extractions shall be included in the salary assigned to the officer, and shall not be made by fee."

VACCINATION AND DENTAL CARIES.—Lieut.-Colonel Wintle explains dental caries in a word, and that word is vaccination. He quotes the opinion of Albert Carter a dentist, who wrote about thirty years ago that he "had examined the teeth of men in nearly all conditions of civilisations and barbarism, and the outcome of his observation amounts to this: That wherever the people are not vaccinated their teeth are sound, but wherever the practice of vaccination has been introduced the teeth of the people deteriorate just in proportion as the population comes under the influence of vaccine" He goes on to say "In Ceylon I found that while the native races had nothing to complain of in their teeth, the young people of European parentage who had been vaccinated were suffering dreadfully. In Burma also, I found the very small population who had been vaccinated very generally suffering from dental decay, while the Burmans themselves appeared to be exempt, except, indeed, where they had filed off their teeth from conventional ideas of beauty. In Australia the same remarkable phenomenon presented itself. I found the dentsits of Melbourne hard at work repairing the ravages of disease, and ascertained, upon enquiry, that the Colonial-born portion of the population suffered with unusual severity from dental caries; but while I was in the interior I met with a party of aborigines,and induced them to allow me to examine their teeth, and found them provided with teeth of the African type, but without the slightest trace of decay. It is, therefore, clear that it is neither the climate, the water, nor the physical features of the country that causes decay; neither is it diet, for the vegetarian Brahmin and the flesh-eating, grog-drinking Pariah are alike blessed with sound teeth."

This is evidently written from the Anti-Vaccination point of view. The fact is that "civilization" is the cause of bad teeth, and vaccination is only one among many unnatural but expedient customs which are included in that compendious word.

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THYROID EXTRACT AND CANCER.—Dr. Frederick Page, of Newcastle-upon-Tyne relates in the *Lancet*, a case in which recurrent carcinoma of the female breast entirely disappeared under the persistent use of thyroid extract, continued for eighteen months. Dr. Page says that after the first operation, the disease recurred in three months, and after the second operation it re-appeared in three weeks. If ever there was a a hopeless case this seemed one, and yet now there is no trace of the disease to be discovered. If it was not the thyroid extract, what was it? There is no doubt about the cancer, and there is no doubt the patient is now strong and well.

HULL BOARD OF GUARDIANS.—At a recent meeting of this Board the Deputy-Governor moved that Mr. H. L. Bergman. who had acted for two years past as honorary dental surgeon to the institution, be officially appointed dental surgeon to the Hull Workhouse at an honorarium of £20 per annum. In discussing the matter one member said that the Board were wrong in the first instance in accepting Mr. Bergman's services without payment. The office should have been open for competition. Another member moved that the honorarium be paid for past services, while another amendment was to the effect that the annual fee should be ten pounds. Eventually the Board (as far as we can understand the Report) seems to have voted the £20 for past services, and we hope if that is the case that in electing another candidate (or the same one again if suitable), they will adhere to the recommendations of the Local Government Board.

ELECTRIC CURRENT FROM PUBLIC SUPPLY.—The advice given in *L'Etincelle Electrique* to dentists who use the electric current in their operations, is worthy of attention. The practice of taking the current from the public supply is condemned, and operators are enjoined to use a storage battery, and have the same recharged by those whose business it is to understand these matters. A dentist who uses a mallet which is connected with the electric light supply, may give his patient some day a much larger shock than he intended, and the public electrocutioner may be cheated out of a future victim.

# Abstracts of British & Foreign Journals.

## FUSIBLE METAL.

By Dr. G. Molyneux.

We feel safe in saying that a metal composed of five (5) parts of bismuth, three (3) parts of lead, two (2) parts of cadmium, properly compounded will produce a more perfect model than can be obtained by the use of plaster. But a model of this metal cannot be used in place of plaster in all cases, as in vulcanite, or celluloid work, for the fusing point of the metal is about 130° F.

It is especially designed for the making of a perfect die and counter-die with the expenditure of not over five minute's time, and with the very simplest kind of apparatus. By the use of such an alloy the difficulties of sand-moulding are overcome and the production of a perfectly adapted plate is the result. To successfully use this, or any low-fusing alloy, several points must be constantly observed : 1st. Castings are sharpest and nearest perfect when the metal is poured close to the congealing point. 2nd. Overheating causes a loss of time and deterioration of the alloy. 3rd. To make a perfect and smooth casting in modelling compound the impression should be first oiled and then the alloy is cast in a mush-like consistency, when it will fall in a thick soft mass into the impression which is quickly jarred on the table, cooled in water and separated. A little practice will enable the operator to produce a perfect model in every instance. 4th. Take a plaster impression directly from the mouth, soak it thoroughly with sperm oil, and pour the alloy at a little higher temperature than for modelling compound and let it stand until cold. 5th. In order to obtain a thick base for the model take a thin copper strip, in lieu of this take a strip of heavy writing paper, about ten or twelve inches long and two inches wide, wrap around the impression and hold in place by snapping over it a small rubber band. Fill in spaces between band and impression with soft putty which will always be ready for use by being kept under water. A half-pound screw-top vaseline jar half filled with soft putty and covered with water will keep pretty soft for years. 6th, To make counter-die, wrap the copper strip around the base of the die and fill all undercuts and unnecessary parts with the putty, paint over the surface with whiting dissolved in water or alcohol, and cast the alloy as cold as possible.

Before remelting castings they should be cleaned of all putty and other dirt ; if, however, the metal becomes contaminated, it can be heated until it becomes perfectly fluid, when the impurities can be removed with a piece of blotting paper. One illustration of the use of this alloy may be suggestive of its many valuable applications. In adapting a gold or platinum base for full dentures where the recession over the tuberosities and anterior ridge is so great as to make sand-molding without a core absolutely impossible. Make the model or die of fusible alloy by casting into the impression. For such a case always use plaster, as this can be broken off in such a manner as to be restored and a second die cast. Upon this second, the relief or vacuum chamber, made of block tin can be attached, with thick shellac varnish, or the relief can be first trimmed out of the impression. Use the second die for the first stamping of the plate, making the adaptation to the undercut as close as possible with rivetting hammer. Try the plate in the mouth and properly trim and wire if necessary. Replace on the used die and wrap the plate and die with one covering of cheese-cloth or thin paper, and place in the Parker shot swedging device and swedge. The plate cannot now be removed from the die, but by placing the same in hot water the metal will run out of the plate, leaving it unchanged in shape. It can now be polished, and after transferring the relief from the old die to the unused one, the plate is sprung on to it, and swaging with shot and melting the metal out as before, will leave the plate with an adaptation that cannot be procured by any other method.

In taking an impression for metal castings, it should be a little thicker than usual, and any number of dies can be made from the same impression, all of which will be alike.

The compounding of this alloy requires the greatest of care in protecting it from the action of the air, during the first melting and in the manner of adding the metals, as it never again approaches the first heat, except by carelessness, the metal will remain permanent in composition and working qualities indefinitely.

The necessary expense of this alloy, which at first may seem unreasonable, will be saved in the saving of time in one difficult case. After two years of constant use of this metal I can positively state that it will meet all the claims I make for it.—*Dental Register.*

## MR. VICTOR HORSLEY AND THE GENERAL MEDICAL COUNCIL.

The following report by Mr. Horsley has been published in the *British Medical Journal.*

Ladies and Gentlemen,—In my first report to you on the work of the General Medical Council, to which you appointed me as one of your direct representatives, I communicated to you instances of serious unconstitutional action on the part of the President of the Council. It was generally hoped, both within and without the Council, that with the appointment of a new President a stricter observance of constitutional procedure would ensue, and that the efficacy of the work of the Council would be notably promoted.

I regret to be obliged to report to you that immediately upon the recent appointment to the Presidential Chair there has been committed by the President a deliberate attack on the rights of individual members of the Council, and a new and very serious infringement of constitutional government.

The facts are as follows: After the November session of last year I commenced a research among the valuable archives of the Council to determine, first, the exact position of many legal questions concerning the practice by medical men of their profession; secondly, the methods according to which the legal work of the Council is conducted, and, thirdly, the cost to the Council of such legal work.

For several months—that is, up to April 7th—I carried out my investigations: visited the office from time to time, inspecting such documents as were necessary for the elucidation of different points, the Registrar producing the same when requested.

In the course of my work I became aware of certain grave matters, which I communicated without reserve to Sir William Turner, the then acting Chairman. Upon April 7th, the President having been elected on April 5th, I suddenly received notice from the Registrar that he was instructed by the President to refuse me any access to any document or financial paper belonging to the Council unless I had previously obtained the permission of the Executive Committee or of the Council. Having ascertained that the Registrar was acting solely under the President's instruction, I wrote to the President and asked him :

1. By what regulation of the Council or legal enactment he sought to debar me of my right and privilege to inspect the documents of the Council for the purpose of preparing work for the Council's session.

2. Whether he included all documents in his embargo; and

3. Whether he considered that he, like his colleagues, was similarly debarred from inspecting any document unless he had previously obtained the permission of the Executive Committee or Council.

I regret to have to report that the President has complicated his extraordinary action by refusing in uncivil terms to answer any of my questions.

The constitutional point thus raised is so simple that I need not extend the position save to explain that of course the Medical Acts and Standing Orders of the Council confer no such power, as that which the President claims, upon that officer, and that I am taking all steps that may be necessary to clear away this novel and foolish hindrance to my work for the execution of which you appointed me.

## THE FIRST DENTIST TO USE COHESIVE GOLD.

By Dr. Black, Chicago.

Dr. Black in the *Dental Review* writes: "When the welding property of gold was first discovered, it was thought by most dentists to be some special preparation of gold. The facts were these: Dentists had been urging upon manufacturers of gold foil the importance of the gold being pure, and that the surface of the foil should be clean. This was urged from year to year increasingly, and it so happened that in the effort to get the gold pure and the foil clean the manufacturers found the gold foil became sticky, and they were in considerable trouble because the sheets of gold stuck together in such a way that they could not be unfolded without tearing the sheet. This was regarded as objectionable, and they contrived various means for overcoming this stickiness before the gold was put upon the market. But it so happened that some books of gold went out that were still sticky, and Dr. Arthur, discovering this, thought it was a curious thing. He tried the gold in filling teeth, and thought this adhesive property of the gold was a great advantage. He therefore wrote to the manufacturers, asking if he could have more of the sticky gold, and he was informed he could have all he wished, and that if the gold was freshly annealed before using it would be more sticky. After careful experiment he announced that gold would weld cold, that there was an actual welding of the gold, not simply an adhesion, but absolute cohesion. Then came the discussion of this cohesive property, why it was developed, and why it was lost, and we had quite a number of papers, some very learned, dealing with this subject theoretically. It so happened that I was somewhat engaged in the study of this subject myself, and for other reasons entirely I had set up a chemical laboratory in a room connected with my office, and was doing a great deal of chemical experimental work, having class recitations evenings. Now, it was common in those days for dentists to have more or less gold lose its welding property in such a way that it could not be restored by annealing. While I was carrying on the chemical experiments I discovered that I was having more trouble than usual with the welding property of my gold, giving me the idea that the gases escaping in these chemical experiments had something to do with it. I therefore instituted a search, exposing gold to this gas and that, and I discovered that each of a very considerable number of gases would destroy the welding property of gold promptly. How did it destroy it, was the next question ?

If we place gold in the atmosphere of ammonia, the ammonia is condensed upon the surface of the gold ; there is not merely an adhesion to the gold, but an actual condensation of the gas upon the gold, forming a thin film of a solid. If we dip it in chlorine gas that is dry we have the same kind of condensation, but in greater amount. If it is damp, the chlorine gas will actually attack the gold, forming a chemical combination.

# TO REMOVE ENAMEL PREVIOUS TO CROWNING.

By H. H. JOHNSON, D.D.S.

Take a molar or bicuspid, for example, which is to be prepared for an all-gold shell crown. When spacing will be required between the tooth to be crowned and the adjoining tooth, it can be more easily accomplished with vulcan disks, which are thin, strong, flexible and cut rapidly.

Care should always be used not to cut the opposite tooth, which can easily be avoided by using pressure towards the tooth to be prepared. By the time sufficient space has been been obtained these two sides, the anterior and posterior approximal, have generally been squared up very well, as these thin disks will easily pass down below the festoon of gum and remove all the enamel.

The buccal and lingual sides and the approximo-buccal and approximo-lingual corners is generally where the difficulty arises.

The buccal and lingual sides down to within a few lines of the gingival margin may be easily and rapidly cut away with small carborundum wheels, which now leaves the crown of the tooth above the neck in a square shape. The disk has flattened it on the approximal sides, and the small wheels on the buccal and lingual sides. By taking small, thin, double convex carborundum wheels these comers may be cut down until the tooth takes a proper shape and all the enamel is removed, except a little ring around the neck of the tooth, which generally extends up just beneath the gum margin. To remove this little ring of enamel there is nothing so effective as the vulcan or concavo-convex wheels. The thin edge of these little vulcan cup wheels will pass easily down below the margin of the gum scarcely wounding it and cut off all the irregularities and excrescences. The range of work which these little wheels will do is remarkable, and they are hard and tough and do not wear easily. After cutting and levelling down the bumps, the surfaces of the crown should be planed off smooth by using scalers made very hard and sharp. For this purpose the ordinary diamond pointed, double-edged scalers are best.

By placing the thumb on the crown of the tooth and grasping the scaler firmly in the fingers, commencing at the gum line and pulling downward towards the cutting edge, the surfaces can be effectually planed off and rendered perfectly smooth. If any enamel should have been left by the wheels it can be easily removed with the scalers in this way.

As these scalers come from the manufacturers, they are too soft for the purposes suggested above, and must be hardened. This can easily be done by heating the point to a white heat and plunging in cold water or oil. Some claim that mercury is still better.—*American Dental Weekly.*

## USE OF THE DISK.

By W. A. Heckard, D.D.S , Indianapolis.

The disk-holder or mandrel may ofttimes be used more advantageously if the head or screw that holds the disk be dressed down a little. Many times a very small disk is called for in finishing small gold fillings at the " gum line " or on the labial surfaces of the central incisors. A large mandrel head mars the surface of the filling if it touches it, and it often does when small disks are used. In polishing gold fillings in molars and bicuspids when leather, chamois, moose hide or soft rubber is used to carry the polishing powder, the large mandrel head makes it hard to polish in the fissures. By putting the mandrel in your hand-piece and turning it against a file or stone, it takes but a few minutes to reduce the size of the head to one-fourth the original size. I only use a large headed mandrel when using large disks. "The disk is a very painful thing, and I use mostly strips and work them back and forth slowly." Do you? Oh !—I don't ; I use disks almost exclusively, always when it is possible. To obviate the pain, which is caused by nothing else but the heat, I have my assistant throw a continuous blast of cold air on the tooth. The air alone, of course, would hurt as much as the ordinary manner of disking does, but properly applied at the same time, neither it nor the disking gives any pain whatever. To get cold air you can use a continuous flow Richmond spray, a blow-pipe bellows, or a compressed air apparatus such as is used by the nose and throat specialists Some of the modern buildings in large cities furnish compressed air, which makes it very convenient for dental work.

In putting on the final polish I use a rouge-coated paper disk. This polishes a filling smoother and better than anything that has yet been brought to my notice.—*Ind. Dental Journal.*

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## SOFT GOLD FILLING.

By Dr. C. C. CHITTENDEN, Madison, Wisconsin.

Soft gold is susceptible of being brought into perfect contact and adaptation to the side and floor walls of proximate cavities of molars and bicuspids by the wedging process and the burnisher—*more* perfect contact with far less danger of injury to delicate and frail margins of such cavities than the harder and less plastic cohesive forms of gold in general use. With the latter the mallet is almost indispensable, and in many cases the result of its use is to check, mar and even pulverise the enamel border, thus, although not visible to the naked eye, insuring certain ultimate failure of the operation. This class of cavities is in my judgment least likely to failure by the use of soft gold for the proximate portion, finished toward the grinding surface with any form of cohesive gold desired.

The two best ways of making such fillings, are: First, Use a band matrix not too closely fitting the walls, and so force and wedge soft foil against the walls and matrix as to cause a surplus or overhanging of gold throughout the proximate borders which, after removal of matrix, must be burnished carefully over the margins and properly finished and polished. Second: Make cylinders of soft foil as before described, one-fourth to one-third longer than the lateral depth of the cavity, and so place and wedge them against the floor and walls that their overhanging ends extend into the space, there to be later burnished against and over the enamel margins. It is the simplest matter in the world to complete these operations with cohesive gold, beginning at any point from which forward it is desirable to have a hard welded surface for mastication.—*Dental Digest.*

# Reports of Societies.

## ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, May 2nd, 1898. Mr. W. E. Harding, L.D.S., President, in the chair.

The Secretary read the Minutes of the last meeting, which were confirmed.

Mr. Francis Henry Morgan Van-der-Pant, L.D.S. Eng., was balloted for and elected a resident member. Mr. W. B. Woodhouse signed the Obligation Book, and was admitted a member of the Society.

Messrs. Preedy and Barrett were appointed auditors of the accounts.

The Librarian announced that he had received a paper "On the Development of Marsupial and other Tubular Enamels, with Notes upon the Development of Enamel in general," by Charles S. Tomes, M.A., F.R.S., contained in a number of the *Philosophical Transactions of the Royal Society of London*. He also stated that Tomes' "Dental Anatomy," 5th edition, 1898, had been added to the Library. He took the opportunity of intimating that he would be glad to receive any changes of address of members, or additional qualifications for insertion in the list of members, which would be sent out after the Annual Meeting in June.

Mr. STORER BENNETT (Curator) said he had been asked to show, but not to announce as a contribution to the Museum, two mandibles that had been dug up at Highcliff, about four miles from Worthing. There was nothing very remarkable about them except that they were said to be Anglo-Saxon jaws, and to date from about the year 600. The bones and teeth were well developed. They showed a good many *post-mortem* marks of time, the result, he thought, of the lime in the earth in which they were buried. He also exhibited a small supernumerary third molar, which Mr. J. Henry Whatford, of Eastbourne, had extracted from between the second and third maxillary molars. It was a curious, flattened tooth, very small, but had three exceedingly well marked cusps, and was more of the shape of a seal's than a human tooth. Mr. Whatford had also sent two models from a young lady, 17 years of age, showing an entire absence of bicuspids. Whether the bicuspids were in the jaw and had not erupted was not known, as the X-rays had not been used. From the appearance of the jaws it was possible the teeth themselves had never been developed at all. On the right side the second temporary molars were both retained, and it was rather curious that in the mandible the second temporary molar was retained quite low down. One very often found where the second temporary molar was retained beyond its time that it was locked at a lower level than usual by the first permanent molar and first bicuspid; but in the present case there was no first bicuspid, and the tooth had not come up to the level of the first permanent molar, as commonly occurred, and as had occurred in the maxilla.

Mr. Morton Smale, to whom the Society was so deeply indebted for a great many specimens of comparative dental pathology, had sent a most interesting lion's skull—probably a young lion not quite fully grown. In the maxilla on the left side the canine was missing, but it could be seen from the socket that the tooth was fully developed and erupted to its ordinary extent. On the right side the canine was only just erupted to a very slight extent, about half an inch, and he was curious to understand why that was the case. He therefore cut a window from the outer alveolar plate and removed the tooth. In examining the nasal fossa it was found that the plate of bone covering the canine tooth was very thin, and the tooth could be seen projecting in places through the bone. Apparently, therefore, for some reason the tooth had been tilted a little inwards towards the nasal fossa, and so what ought to have been the root projected into the fossa. On removing the tooth to examine it he found it presented a most remarkably stunted, aborted condition The crown apparently had been perfectly developed, and the tooth appeared to have been dislocated with its base inwards towards the nose. Consequently the mass of soft pulp which ought to have developed a root lost its nourishment. The result was a stunted mass of dentine. It was interesting to notice that those stunted roots were in the lower animals not quite as uncommon as might be imagined, and he therefore exhibited two other specimens taken from monkeys illustrating the same condition. There was one other point of interest with regard to the lion's skull, namely, that the infra orbital canal was bifurcated on the left side ; on the right side it was a single cavity of the ordinary shape and size.

Mr. Storer Bennett exhibited several lantern slides illustrating the formation of the tooth.

## Casual Communications.

Mr. W. R. Acland read the following notes on Catarrh of the Antrum. He said :—

It occurred to me that I should like to compare notes with my professional friends upon a certain class of case. I do not know any better method than by giving you my own experiences, and trust to get useful information in the discussion which I hope will follow. In fact, I want very much to hear any experience of similar cases.

I have frequently met with patients suffering from neuralgia in and around the malar prominence during nasal catarrh. It may be that the nasal catarrh is only present on one side, or at least worse on one side than the other. And this, as one would expect, is the one on which the pain is felt. This pain, which is of a dull heavy character and unaccompanied by surface tenderness, is exacerbated by blowing the nose. It is then very acute for a second or two, gradually dying away to the old dull pain.

Besides the malar pains one has noted flickerings of pain in the temporal region, and most important of all, that a tooth or teeth, or the whole jaw of that side may ache.

I attribute those pains to a catarrhal state of the antral mucous membrane, spreading from the nasal catarrh ; and it is here to be noticed that this neuralgia seldom begins until the nasal catarrh is well established, or even clearing up. One has only to remember the many nerves in the antral walls passing to the skin and the teeth, to realise the possibility of pain arising in this way, and to understand the effect of alteration in the air pressure induced by blowing the nose.

The mucous membrane of the antrum is largely supplied by one of the posterior dental nerves, and this nerve also gives off branches to the molar teeth. It inosculates with the anterior dental nerve which supplies the bicuspid and incisor teeth. And this latter nerve unites with the posterior nasal nerve from Meckel's ganglion at the apex of the canine root. So there is a large network of nerves intimately associated with the mucous membrane of the antrum.

My earliest notes on neuralgia arising in this way were made on my own case. I had a bad nasal catarrh which seemed most severe on the right side. Towards the later stages I had a thorough bone ache (which seemed to me to exactly map out the right maxilla), and all the teeth were hypersensitive, the funniest thing being that teeth which I had long since lost were apparently aching too. There was also present an altered state of skin sensation over the right eye and right side of the scalp. I think I attributed this to extension of the catarrhal inflammation to the frontal sinus.

Possibly an alternative explanation of these cases, to that suggested by the title of my communication is, that the nasal mucous membrane being swelled the antral opening is closed, or nearly so.

And here I may note as a curious fact, that having examined twelve antra in one dissecting room, I found that four of them had no opening at all. I take this to be rather an exceptional proportion.

I suggest this alternative explanation on these grounds, that such a temporary modification of the air pressure might in itself have such an effect as to cause the foregoing symptoms without having to imagine a catarrhal state of the antrum to explain it.

However, I cannot think this latter explanation so fitting to all symptoms as the first. I can imagine an antral catarrh being the cause of the continuous ache, and it seems easy to imagine such a swelling of the mucous membrane around the antral opening as would make a sort of valve of it, and hence the painful effect of blowing the nose.

The question of treatment is not exactly in our department. Still, I venture to prescribe in those cases what I had used on myself, viz., a cocaine and menthol spray. The effect of cocain in reducing catarrhal inflammation is simply wonderful. A few drops of a six per cent. solution will make a difference in half a minute in a nostril completely blocked. I may incidentally mention that in my own case I found smoking a great pain reliever.

Mr. H. LLOYD WILLIAMS said Mr. Ackland's communication was interesting as describing the spread of inflammation from the nasal mucous membrane to the antrum. As a general rule, dentists looked upon that as a very rare thing. Still in certain cases it occurred, and Mr. Ackland's cases proved that the antrum did sometimes become inflamed through inflammation spreading from the nasal fossa. Did any of Mr. Ackland's cases become chronic? In the cases dentists were called upon to treat it was very often difficult to trace the origin. The only case of acute inflammation of the lining membrane of the antrum that he had to treat was such a serious one that he doubted very much whether there was not some new growth somewhere. It was in a man aged 45, and he wasted rapidly. A colleague examined his nasal fossæ and the sphenoids for evidence of a new growth, but nothing was found, and after a short treatment the patient was sent to the seaside, where he recovered very rapidly. The case was one of catarrh, but after the patient had been under treatment for some three or four days there was some pus, but never any large amount.

Mr. ROUGHTON said that although the antrum was often affected as the result of dental disease, it must be borne in mind that the antral mucosa was continuous with that of the nose, and therefore prone to share in any inflammatory trouble affecting the latter. In an ordinary attack of acute nasal catarrh, pain in the region of the frontal sinuses was not at all uncommon. This was no doubt due to extension of inflammation along the infundibulum. The same thing occurred with the antrum, but pain was not so frequently noticed. This was probably due to the fact that the infundibulum was a long canal and easily obstructed when its lining became swollen, whereas the opening into the antrum, having no appreciable length, would not be so easily blocked.

Mr. ACKLAND, in reply, said in all his cases he had referred to acute catarrh. The patients came to him because their teeth ached. As a rule in chronic catarrh there was no pain to any extent. In all of his cases, as far as he followed them, they cleared up like an ordinary cold. One could see the truth of Mr. Roughton's remark that the length of the infundulum would more frequently cause pain in the case of the frontal sinuses than in the case of the antral opening.

Mr. GEORGE THOMSON exhibited several teeth which had been stopped, which he said he kept in his possession, having found them very useful in explaining to his patients certain details of operating. He also referred to the importance of correct contours, and made references to the condition of the teeth of some of the lower animals. He considered that proximal cavities, if not filled in properly, and contoured so as to restore the natural condition, would not be permanent or satisfactory. He only knew of one permanent and quite satisfactory way to contour a molar or bicuspid, and that was with a cohesive gold filling.

A paper was then read by Mr. ALFRED COLEMAN on "A Method of Prolonging Anæsthesia in the Mouth," which is printed on page 529.

### Discussion.

The President said that he remembered Mr. Coleman was very much interested in the administration of anæsthetics through the nose in the old days in Soho Square.

Dr. Hewitt said he had come to the meeting to learn rather than to take part in any discussion. He could not but congratulate the Society on having received a paper from so eminent a member as Mr. Coleman, and he thought that Mr. Coleman's energies had been very well directed in endeavouring to prolong the anæsthesia of nitrous oxide. Mr. Coleman brought his apparatus to the Dental Hospital, but it was not then in such a perfect state as it was at the present moment. It was, however, quite obvious to all those who saw his administrations that he was able to prolong the anæsthesia very considerably. He did not wish in the slightest degree to throw cold water upon Mr. Coleman's endeavours, but it seemed to him, if he might say so, that the chief objection to the system was that in a certain percentage of patients there was partial or complete nasal obstruction. If it were certain that a patient had no nasal obstruction, then it appeared to him that the plan of Mr. Coleman had much to recommend it. Mr. Paterson's figures were exceedingly interesting. To obtain an anæsthesia of five minutes by the method spoke very well for it. One would rather have liked to know what kind of anæsthesia was produced—whether the patients were perfectly quiet during the time, or whether there was some movement in the chair. It must be borne in mind that during the last ten or fifteen years our ideas as to what anæsthesia should be had been somewhat modified. Operators now-a-days expected their patients to be absolutely immobile, and very properly so. He did not say that that condition could always be brought about; but at the same time, if the method of Mr. Coleman could not provide the usual immobility on the part of the patient, the method could hardly be considered very satisfactory. It was well known that nitrous oxide was exceedingly safe, and if the new plan could be so improved that it could be depended upon, a considerable step would have been gained. It seemed to him that in using a nose-piece one ought to be exceedingly careful to have it properly washed between each administration. In the case of a face-piece this was not so necessary, because the pad of the face-piece was adapted to the cheeks, and was a considerable distance away from the lips and nasal orifices. But in the case of a little pad, such as had been mentioned, which must come very near the nostrils, it was important that that contingency should be provided for. If these points were borne in mind, and patients could be obtained whose nasal passages were free, there was a distinct future for the method.

Dr. SILK said that he was in very much the same position as Dr. Hewitt, as he had come to sit at the feet of Gamaliel, and not to take part in the discussion or to make any suggestions. He was, indeed, in a worse position than Dr. Hewitt, having had no practical experience of the plan suggested by Mr. Coleman. There were, however, one or two points which struck him. The proposal of Mr. Coleman seemed to involve two principles; in the first place, the principle of the possibility of prolonging the anæsthesia by means of nitrous oxide, and in the second place, the principle of the introduction of that nitrous oxide through the nasal passages. With regard to the possibility of prolonging nitrous oxide anæsthesia, that had been one of the things which all anæsthetists had been more or less inclined to aim at; as far back as 1848, Dr. Bigelow in America had excised a breast under its influence. Dr. Hewitt, with his usual modesty, had not put forward his own claim to success in this particular direction when he introduced the admixture of oxygen and nitrous oxide. The proposal to use nitrous oxide by itself, or mixed with air, was one fraught with a great many difficulties, and he thought that Mr. Coleman's apparatus had indicated the possibility of success. In the first place, there were the difficulties with regard to the nose-piece, and the frequency with which nose breathing was absent in patients. Then again, from an operator's point of view the arrangement of the bag was a little awkward in connection with the dental chair; these perhaps were minor points, which a little mechanical ingenuity would soon overcome. Other propositions had been made with a view to prolonging nitrous oxide anæsthesia, one being to put a nasal tube down the nose and convey the nitrous oxide to the back of the throat. Anybody who had much experience would know, he thought, that it was not always easy to pass a tube of any size through the nose; it frequently gave rise to bleeding, and so rather embarrassed the operator. Another proposition was to put a tube at the back of the tongue towards the epiglottis, or over the epiglottis. With all these propositions there was one difficulty which seemed a very great one, and that was the difficulty in giving a sufficient percentage of the nitrous oxide. If it were given through the nose, the mouth was open, and therefore it became very difficult to maintain anæsthesia when the nitrous oxide was so freely mixed with air. Another difficulty which struck him was that the tube must be attached to a bag, or to some form of apparatus by which the nitrous oxide might be warmed. Nitrous oxide from a bottle of condensed gas was intensely cold, and he would be a bold man who continued a stream of intensely cold nitrous oxide direct on to the glottis and the surrounding structures for any length of time. With the second bag this might be to some extent obviated, but there was, as Mr. Coleman himself admitted, some question as to whether his arrangement might not be improved upon. As to the principle itself, there could be no doubt that it was a good one, and that Mr. Coleman had done a great deal towards making the plan feasible, practicable, and of considerable utility.

Mr. RUSSELL BARRETT said he was present at the experiments that Dr. Buxton made, and they were extremely successful. Very long anæsthesias were obtained, but some of the patients were rather troublesome towards the end. If he remembered rightly, Dr. Buxton did not do exactly as Mr. Coleman suggested, that was, give the anæsthetic entirely through the nose. He anæsthetised the patient with nitrous oxide in the ordinary way, with the ordinary face-piece, and immediately held the nose-piece over and kept up the anæsthesia with considerable pressure in the bag, which he controlled with his hand.

Mr. PATERSON said he was the operator in the fifteen cases quoted in the report of his namesake at St. Bartholomew's Hospital. There was no doubt in his mind, that the apparatus had very great advantages, and that anæsthetists would in the future be compelled to adopt some such system in prolonging anæsthesia for difficult dental cases. In the list quoted, the times were those occupied for the particular operations in hand. The longest, viz., of five minutes, was a case in which several teeth and roots were taken out—thirteen, in point of fact. It was a difficult case, inasmuch as he had to split a maxillary molar and take its roots out separately; sponged to arrest hæmorrhage had also to be used, and so prolonged the time of the operation. The first case at St. Bartholamew's in which the nose apparatus was tried was a case very similar to the one Mr. Barrett has described, namely, the ordinary face-piece was first put on and "gas" administered for a time, when it was taken off and the nose-piece applied. That case was an utter failure as far as the prolongation of anæsthesia was concerned. In the second case the nose piece was tried alone, with the ordinary face-piece covering it. That case was, comparatively speaking, a failure also. It was then discovered that they were trying to anæsthetise people who could not breathe properly through their noses. The next case was a woman who was a splendid nose-breather, and the rapid way she went off and the way she lasted for a simple tooth extraction was remarkable. From that time he began to believe in the apparatus. Then the cases were chosen, and the method employed only when there was free breathing through the nasal passages. All the cases in the quoted list were in this manner selected cases. The other cases to which he has just referred had probably been left out of the report as valueless. There was no doubt in his mind, and he thought there would be no doubt in the mind of anybody who tried the method in a suitable case, of its great value in prolonging the period of anæsthesia. It was surprising to one who had been used to operating under nitrous oxide, as ordinarily given, to find that one could go on doing work for an apparently unlimited period of time. He had had no case amongst those quoted in which he had not been able to do absolutely all that he wanted to before the patient came round. With regard to the apparatus itself, it was cumbersome, and at first rolled off the head. At St. Bartholomew's they rigged up the hand rest of the chair to form an upright post and twisted a piece of copper wire round it to hold the tube, &c., as in a fork. The weight of the apparatus was another drawback. It might be lightened it aluminium were used, and some method of supporting the bag and tubing at the back of the chair by means of a portable stand, or a table, or other arrangement were adopted. With regard to the nose-piece, it was at present heavy, uncleanly, and a bad fit. He quite agreed with Mr. Coleman that there should be an air-pad to ensure a closer fit, and if the framework could be made of some light and easily cleaned material it would be an advantage. There was a little difficulty in operating in the upper incisor region with the present nose-piece—in fact it could not be done if the patient had a short upper lip. In one of the cases he had to deal with, the nose-piece had to be taken off in order to allow of the extraction of incisor roots being carried out. Otherwise, as far as the principle of the method went, and as far as the length of anæsthesia was concerned, there was no doubt in his mind that it was a valuable means and had come to stay.

Mr. Badcock asked if any after effects followed the prolonged application of anæsthesia.

Mr. Paterson said he had seen none, but it must be recollected that they were dealing with hospital patients, who were in most instances quite unaccustomed to anæsthetics, and who were not so particular as private patients.

The President having thanked the readers of the various communications, and also the gentlemen who had taken part in the discussion, and the donors and contributors to the Library and Museum, adjourned the meeting to June 6, which was the annual meeting.

# Dental News.

## GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

### Spring Session, 1898.

Tuesday, May 24th.
SIR WILLIAM TURNER, President, in the Chair.

### THE NEW CROWN NOMINEE.

The first business was the receipt of an official notification of the nomination of Mr. Charles Sissmore Tomes, F.R.S., F.R.C.S., L.D.S., to be for five years a member of the Council. Mr. Tomes was introduced by Mr. Bryant. The President said the Council welcomed Mr. Tomes as distinguished in scientific research, an eminent dental practitioner, and a Fellow of the Royal College of Surgeons of England.

Friday. May 27th.
SIR WILLIAM TURNER, President, in the Chair.

### DENTAL EDUCATION AND EXAMINATION COMMITTEE.

Mr. BRYANT moved:

That the recommendations of the Dental Education and Examination Committee as to the course of study and examinations to be required of candidates for Licences in Dentistry or Dental Surgery be adopted by the Council.

The report stated:

In November last, when the third report of the Committee was brought before the Council, it was remitted to the Committee to draw up their recommendations in the form of a series of propositions, each dealing with a single subject, in order that the Council might be enabled in May to come to a definite decision on the questions before them. This has consequently now been done. The Committee have also to report that the dental curriculum, as now brought before you, has received the support of all the dental schools (except Manchester and Dublin), which have not yet spoken.

Then follow the recommendations of the Committee, which were each moved separately and discussed, the Council going into Committee for the purpose. The following recommendations were agreed to:

1. That every dental student shall at the commencement of his studentship be registered in the manner and under the conditions prescribed for medical students. 2. That no person shall be registered as a dental student who has not previously passed one of the preliminary examinations in general education recognised by the Council, unless before July 22nd, 1878, he commenced professional study by apprenticeship to a dentist entitled to be registered, or by attendance on professional lectures. 3. That every candidate for a licence in dentistry or dental surgery shall be required to produce certificates showing (*a*) that he is at least 21 years of age. (*b*) That he has been registered as a dental student. (*c*) That he has, subsequently to the date of registration, been engaged in professional study for at least four years. (Not more than one year of *bonâ fide* apprenticeship to a registered dentist, if served subsequently to the date of registration, may be reckoned at a portion of the four years of professional study required.) (*d*) That he has attended courses of instruction in the following general subjects at a recognised medical school (*a*) chemistry and physics (with practical laboratory work) for six months.

This clause provoked considerable discussion.

Dr. HERON WATSON asked that the term "course" should be defined.

Mr. BRYANT said that every body must be free to make what regulations they pleased in carrying out the large recommendations. The Committee did not wish to bind them to deviate in the slightest degree from the course which they thought best. It would be a mistake to define what "course" meant. What might suit teachers in one part of the country would not suit another.

Dr. HERON WATSON asked if he were entitled to inform the body which he represented that the recommendations were guiding lines, and were not meant to be followed absolutely, but only relatively, according to the opinion entertained by that body.

Mr. BRYANT; Certainly.

Dr. McVAIL said that in the Scotch schools chemistry and physics were taught in separate classes, which meant that students there would require to take six months of chemistry in one session, and not less than three months in physics in another session. Again, with regard to practical laboratory work, if the student had to take six months in that, that would be a separate class altogether. There was no six months' course of chemistry and physics with practical laboratory work in Scotland.

Dr. HERON WATSON said that as long as "course" was a doubtful quantity the problem would never be brought to a termination.

Mr. CARTER suggested the addition of certain words, so that the recommendation should read "at a recognised medical school for at least the periods specified."

Mr. BRYANT agreed to the insertion of the words.

Dr. HERON WATSON asked what physics included. Did it include for instance, hydrostatics, hydraulics, optics, and electricity? According to his view it did, and for medical students certainly the last three subjects he had mentioned were of extreme importance.

The PRESIDENT said that in the medical regulations physics was to a certain extent specified.

Dr. BENNETT said the question would be settled by stating "chemistry and physics as required from medical students." These requirements were quite familiar to all bodies, and there was no necessity for putting the dental student on a lower footing than the students he was working with.

Mr. BRYANT thought Dr. Bennett's suggestion was the best that had been made. He considered it was practically equivalent to the Committee's recommendation.

Mr. TICHBORNE moved as an amendment that the clause should read "chemistry, theoretical and practical course six months; physics, three months."

Dr. PETTIGREW seconded the amendment.

Dr. REID pointed out that it was not possible to carry out that suggestion in Scotland.

The amendment was negatived by 15 votes against 6.

Sir CHRISTOPHER NIXON moved, and Sir WILLIAM THOMSON seconded the following amendment;

That the recommendation read as follows; "Physics, a three months' course; chemistry, a six months' course of theoretical and a three months' course of practical."

The amendment was negatived by 15 votes against 9.

On the requisition of Dr. McVAIL the names and numbers were taken down.

The original recommendation of the Committee, with the addition of the words "for at least the periods specified," was agreed to.

Sir RICHARD THORNE called attention to the great disproportion that existed between some of the courses, and asked if, by passing the recommendations separately, the Council was prevented from altering them afterwards when they came to be considered as a whole.

The PRESIDENT pointed out that the Council was now in Committee. When the Committee reported to the Council it was open to any member to raise the point.

At this point the further debate on the Committee's report was suspended while the Council considered *in camera* a report by the Solicitor in regard to the prosecutions directed by the General Medical Council at the November session, 1897.

Saturday, May 28th.

Sir WILLIAM TURNER, President, in the Chair.

## DISCIPLINARY CASES.

Strangers having been readmitted, the President announced the decisions that had been arrived at:

1. That no further proceedings be taken in regard to the case of Isaac Cohen.

2. That the petition in regard to the registration of Mr. Waldo Elmore Royce be not acceded to.

3. That the petitions in the cases of Mr. A. P. Merrill, Mr. T. E. Bush and Mr. E. L. Oldfield, be not acceded to.

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Monday, May 30th.

Sir WILLIAM TURNER. President, in the Chair.

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## THE AMENDMENT OF THE COMPANIES ACT.

Mr. TOMES asked the President if the Council would permit the resolution arrived at *in camera* on Saturday, May 28th, regarding a deputation to the Board of Trade upon the amendment of the Companies Act, to appear upon the public minutes of the Council

The Council having given the requisite permission, the following resolution was placed upon the minutes :

That the President, Mr. Tomes, and Mr. Horsley be a Committee to take such steps as they deem most effective to induce the Government to insert a clause in the Companies Act Amendment Biil, now before Parliament, with the object of preventing the registration of companies to carry on medical, surgical, and dental practice.

The PRESIDENT said that he had written to the Secretary of the Board of Trade, intimating to him that a deputation had been appointed, and asking the President of the Board of Trade to receive it.

## PROCEEDINGS IN CAMERA.

The Council then proceeded to consider *in camerâ* a report by the Solicitor on a prosecution which had been directed on November 25th, 1897.

## PROCEEDINGS IN THE PENAL CASES.

With the permission of the Council, Sir John Batty Tuke withdrew the following notice of motion standing in his name in favour or a resolution recommended for adoption by the Penal Cases Committee :

That it be an instruction to the Penal Cases Committee that no case be laid before the Council which is not based on information given in the form of statutory declaration, or on written statements made by persons who express their willingness to attend the inquiry for the purposes of cross-examination.

Mr. BRUDENELL CARTER moved the following resolution recommended for adoption by the Penal Cases Committee :

That no case or complaint should be considered by the Penal Cases Committee until a statutory declaration as to the facts of the case has been supplied by the complainant.

He said that it had repeatedly been the experience of the Penal Cases Committee that charges of a character which probably could not be sustained had been brought by medical practitioners against their neighbours, but when further enquiry had been made the person making the charge did not wish his name to appear, and would not furnish any information. The Committee wished to be relieved from the duty of investigating cases of that kind. The resolution which he had moved made it necessary that the name of the complainant should be made known as well as that of the person complained of, and he hoped would serve to put a stop to the anonymous delators who wished apparently to injure some of their competitors in practice.

Sir JOHN BATTY TUKE seconded the motion, which was unanimously adopted.

On the motion of Dr. MacALISTER, seconded by Dr. GLOVER, the following words were added to the foregoing motion:

That the Executive Committee be instructed to add words to the Standing Order XIV. 2, which will carry into effect the foregoing resolution of the Council.

## DENTAL EDUCATION AND EXAMINATION.

The Council then resumed in Committee the consideration of the recommendations of the Dental Education and Examination Committee.

It was moved by Mr. BRYANT, seconded by Mr. TOMES:

That Recommendation (IV) (b) read as follows: (IV) (b) Human Anatomy for six months.

The following amendment was moved by Dr. BRUCE, seconded by Dr LEECH;

That words in Sections IV. and V. of the report of the Dental Education and Examination Committee, fixing particular periods for the "courses of instruction" specified after line 8, page 7, Appendix I. be deleted, and that the subjects of professional study and examination be specified as in the recommendation for the professional education of medical students, without the duration of instruction in each subject being defined, and become recommendations of the General Medical Council for candidates for licences in dentistry and dental surgery.

In opposing the motion, Dr. McVAIL argued that the course as laid down was on wrong principles. They had no right to incite a man to say that he had a complete medical education when it was not necessary to ask him a single question in medicine. From letters he had read there were members of the dental profession who believed that the present proposals were a deliberate wrong to the dental student; that the course which he had to follow did not enable him to do his work properly: that he had to sit at lectures on medicine and on endless subjects, and the best way in which he could spend his time was to put a book before him and do his best, notwithstanding the lecture, on dental subjects.

Mr. TOMES was quite at one with what Dr. McVail had said, and would very much like to see the dentists of England fully qualified medical practitioners. A man to get his full medical qualifications had to serve four or five years. If he had also to get special dental education, which was very special, and involved his education to a very large extent in manipulative dexterity, that would take him a very considerable additional period, so that the net result would be that the dentist would have to spend six or seven years on his professional education. He did not think that that at the present moment was practicable.

Mr. BRUDENELL CARTER asked Mr. Tomes whether he was right in holding the opinion that diseases of the teeth were to some extent connected with various constitutional idiosyncrasies, and in such a way that a knowledge of the general principles of medical pathology would be helpful to a dentist in dealing with the various conditions which came under his daily work. If that were so it seemed to him that it would not be difficult that the dental students should be so guided in their medical studies as to derive the maximum of benefit with the minimum waste of time.

Mr. TOMES said that in the everyday practice of the dentist the knowledge of general pathology came in. Hardly a day passed without his seeing and having to form an opinion about cases in which it was difficult to know whether the trouble was local or constitutional.

Dr. Bruce's amendment was lost, 3 voting for, 15 against, and 12 not voting.

The original motion, with the addition of the words "and dissections (with demonstrations) for twelve months," was then put and carried.

On the motion of Mr. BRYANT, seconded by Mr. TOMES, the following recommendations were agreed to:
*c.* Physiology for six months (with practical laboratory work or a separate course of practical physiology).
*d.* Surgery (including the elements of surgical pathology) for six months.

It was moved by Mr. BRYANT, seconded by Mr. TOMES:
That Recommendations (iv) (*e*) read as follows; (*e*) Medicine (including the elements of general pathology) for six months.

The following amendment, moved by Sir RICHARD THORNE, seconded by Sir JOHN TUKE, was put to the Council and lost, 11 voting for, 15 against, and 4 not voting:
That since the Dental Committee deem it unnecessary to require candidates for the licence in dentistry to undergo any examination whatever in medicine, the requirement that they shall attend a course of at least six months in medicine, and a course of clinical medicine at a general hospital extending over at least twelve months, be eliminated from the regulations.

The original motion was then put and carried.

It was moved by Mr. BRYANT, seconded by Mr. TOMES:
That Recommendation (iv) (*f*) read as follows: (*f*) Clinical Surgery and Medicine (at a recognised general hospital) for twelve months.

Dr. McVAIL contended that the resolution was a sham. Nothing could be worse, and it was making a complete burlesque of the whole medical education. It meant nothing at all, and degraded the whole system of medical education. He moved as an amendment the omission of the words "and medicine."

Sir CHRISTOPHER NIXON seconded the amendment.

Mr. BRYANT contended, in answer to Mr. McVail, that the bulk of men who came up to study medicine had to educate their eyes, and look at disease and see and recognise it. If a student was put under the guidance of a skilled teacher for six months or a year, although it would not make him a competent practitioner, it would give him an immense amount of general knowledge in the observation of disease. To say that that was useless was extraordinary.

The amendment was put to the Council and lost, 11 voting for, 18 against, and 1 not voting.

Dr. McVAIL moved as a further amendment;
Clinical Surgery during nine months, and subsequently Clinical Medicine during six months, at a recognised general hospital.

Dr. HERON WATSON seconded the amendment, which was put to the Council and lost, 2 voting for, 18 against, and 10 not voting.

The original motion was then put and carried.

It was then moved by Mr. BRYANT, seconded by Mr. TOMES;
That Recommendations (v) and (v) (*a*), and (*b*) read as follows: That he has attended courses of instruction in the following *Special Subjects*, at a recognised Dental School for at least the period specified. (*a*) Dental Anatomy and Physiology, human and comparative (with practical work and demonstrations in Dental Histology), for [three] months; (*b*)

Dental Pathology and Surgery for (three) months, including Materia Medica and Therapeutics applicable to Dental Surgery for (three) months.

On (*b*) Mr. BRYANT explained that it had been thought expedient to cut out the whole course of lectures on Materia Medica, as the student was only wanted to know the small part that belonged to his own profession.

Dr. LEECH thought the students should have a knowledge of materia medica, as the dentists were constantly using arsenic and carbolic acid in the treatment of their cases.

Dr. HERON WATSON thought it was a great mistake to leave out materia medica.

The recommendations were carried, the word "with" being substituted for "including" in (6).

On the motion of Mr. BRYAFT, seconded by Mr. TOMES, the following recommendations were also passed:

(*c*) Dental Metallurgy (with practical work and demonstrations) for (three) months.

(*d*) Dental Mechanics (with practical work and demonstrations) for (three) months.

(VI) That he has for two years attended the practice of a recognised dental hospital, or of the recognised dental department of a general hospital.

(VII) That he has, before or after registration as a dental student, received for three years practical instruction in Mechanical Dentistry from a registered dentist, or in the mechanical department of a recognised dental school and hospital.

⁂ No portion of this instruction which is anterior to the date of registration shall be reckoned as a portion of the four years of professional study required.

## C. PROFESSIONAL EXAMINATIONS.

4. That the Examinations for a Licence in Dentistry or Dental Surgery shall be partly written, partly oral, and partly practical, and shall include the following subjects:

(*a*) Chemistry and Physics.
(*b*) Practical Examination in Dental Mechanics and Metallurgy.
(*c*) Dental Anatomy, Physiology, Pathology, and Surgery, with Materia Medica and Therapeutics applicable to Dental Surgery.
(*d*) Practical Examination in Dental Surgery.
(*e*) Human Anatomy and Physiology.†

† It is recommended that a synopsis of the scope of the examination in these subjects be issued by the licensing bodies.

5. That the prescribed subjects of examination may be combined or distributed at the discretion of the licensing bodies, and may be taken at two or more successive stages during the course of professional study; provided that no candidate should be admitted to any Final Examination in Dental Surgery and Mechanical Dentistry until he shall have completed the required four years' course.

On the motion of Dr. McALISTER, seconded by Mr. BRYANT, the Council then resumed, and the Registrar read the report by the Dental Education and Examination Committee as amended by the Committee of the whole Council.

On the motion of Mr. BRYANT, seconded by Mr. TOMES, the report of the Committee was adopted for issue as the recommendations of the Council.

Tuesday, May 31st.

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Sir WILLIAM TURNER, President, in the Chair.

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Mr. BRYANT read an additional report of the Dental Education and Examination Committee with regard to a suggestion made at the last session in relation to the two Scotch licensing bodies.

This report was not entered on the minutes, and nothing was done with regard to it.

## ADMINISTRATION OF THE DENTISTS' ACT.

Mr. HORSLEY moved, and Mr. GEORGE BROWN seconded:

That Standing Order No. 15, Chapter VII be and hereby is rescinded. The Standing Order in question runs as follows: The Executive Committee shall carry out generally the provisions of the Dentists' Act in accordance with the Council's resolutions thereon.

Mr. Horsley's contention was that the Council had no right to delegate its authority in the matter to the Executive Committee.

The motion was agreed to by 9 votes against 8; 13 did not vote.

## DENTISTS AND UNQUALIFIED ASSISTANTS.

The Council proceeded to the consideration of a communication from the British Dental Association, dated February 12th, referred to by the Executive Committee to the General Medical Council, as to the issue of a notice to dentists in regard to the employment of unqualified assistants. The letter stated:

Certain members of the dental profession, who possess medical qualifications, have received an important notice from the General Medical Council as to the employment of unqualified persons and assistants, On behalf of the British Dental Association I beg to submit that the time has arrived when a somewhat similar notice as regards "covering" might be sent to all dentists, or that the notice issued to the dental profession by the General Medical Council in 1893 might be repeated. The notice of 1893 was found to be of much service in helping to check the spread of the practice of "covering," as members of the Executive of this Association have reason to know; and it is felt that the issue of another notice at the present moment would, as a preventive measure, be most opportune.

On the motion of Dr. MacALISTER, seconded by Mr. TOMES, it was resolved:

That the question raised by the foregoing letter be referred to a Committee consisting of the members of the Dental Committee for consideration and report.

## ADMINISTRATION OF ANÆSTHETICS FOR UNQUALIFIED DENTAL PRACTITIONERS.

A letter, of which the following is an extract, was also referred to the same Committee. It was a communication referred by the Executive Committee to the General Medical Council, from the Dundee and District Branch of the British Medical Association, signed by the Secretary (Dr. Buist), as to the administration of anæsthetics by registered medical practitioners for unregistered dental practitioners—a practice which, in the opinion of the Executive Committee, is most reprehensible. It ran as follows:

I have been asked by the Council of this Branch to ask you whether the recent notice issued by the General Medical Council will extend to the case of a registered medical practitioner, who by administering anæsthetics for dental operations by persons not registered under the Dental Acts gives countenance to this most objectionable form of practice.

### DENTAL BUSINESS.

On the motion of Dr. MacALISTER, seconded by Mr. HORSLEY, it was agreed:

That the Executive Committee be empowered to receive and consider all applications and communications relating to dental business other than matters pertaining to the Dental Committee, and report thereon to the Council.

## SUMMARY OF DENTAL REPORTS AT THE CENTRAL LONDON DISTRICT SCHOOL.

| | Inspections with chart | Extractions | | Stoppings | | | |
|---|---|---|---|---|---|---|---|
| | | Temp. teeth | Perm. teeth | in Temp. teeth | in Perm. teeth | Scaling cases | Reg. cases |
| 1892 93 | 1153 | 649 | 76 | 10 | 316 | 54 | 3 |
| 93-94 | 1245 | 586 | 109 | 29 | 277 | 61 | 6 |
| 94 95 | 1100 | 514 | 100 | 24 | 241 | 51 | 18 |
| 95 96 | 1172 | 448 | 141 | 11 | 289 | 49 | 12 |
| 96-97 | 1142 | 424 | 93 | 6 | 282 | 54 | 7 |

Remarks.—Rather more than 100 of the Extractions were done under $N_2O$. Of the Stoppings, about half-a-dozen were made with cohesive gold, and nearly all the rest with copper amalgam, principally Sullivan's, and in Molars.

### *ERRATUM.*

In the Pass List of the Royal College of Surgeons of Edinburgh, in our last issue,—Joseph Kenerley Penley should be Joseph Kennerley Pedley.

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

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# NOTES ON AMALGAMS AND OSTEOPLASTICS.*

By Mr. H. Percy Joscelyne.

Mr. President, Gentlemen,—Although I have again the honour of reading a paper before you this evening, on a subject of which, as students, and, I hope, future practitioners, you will have perhaps, in after life more practical experience than of any other branch of Dental Surgery, I feel that I owe you an apology for bringing under your notice a subject which I have touched upon on a former occasion, and which, however interesting it may prove when studied under more favourable circumstances, can receive but scant justice from me, a student. But in doing so I shall avoid as far as possible, —I think I might say I shall avoid altogether,—all matter which I brought before your notice on that occasion, and I had in my mind a subsequent hearty discussion of which I hope you will take full advantage, as I am sure that all of you here to-night, have had some practical experience in the working of plastics and can, in consequence, make some addition, however small, to the voluminous but sadly contradictory observations on this subject which have been already made. You will agree with me, gentlemen, that plastics, as a class, have been greatly abused. Analogy has been drawn, between Amalgam in its relation to Dental Surgery, and Vulcanite in its relation to Dental Mechanics, so, as abuses have been showered upon vulcanite, on the ground, for instance, that it is uneven or of an unnecessary thickness, in the same way may objections be made to amalgam, such as the following :—(1) Improper compositive proportions and distribution of the constituent metals, especially of the inevitable mercury ; (2) Faulty manipulation ; (3) Ill-chosen situations ; (4) Bad shaping of the cavities ; and (5) The finishing of amalgam fillings.

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* Read before the Birmingham Dental Hospital Students' Society.

Of ill-chosen situations, some writers have mentioned the placing of amalgam fillings in close proximity to gold, contending that when a metal, (such as gold), having a marked difference of potentiality from other metals, is so situated as to make connection between it and another filling liable, and this may be brought about by either tongue, lip, or cheek, an electric shock is felt of sufficient severity to be at the least an annoyance to the patient. The remedy, however, as suggested by Foster Flagg is either to amalgamate the face of the gold filling thoroughly, or in the case of the two metals being in the same tooth, to make them join, by means of gold or amalgam. But in my opinion, and in that of several practitioners with whom I have discussed this matter, this galvanic action is considerably over-rated, and to see a mouth in which it either is taking place or has been felt, is an experience I have yet to meet.

With regard to the finishing of amalgams, I consider that this is the most important part of the whole operation, and I am accordingly very sorry when I see, as I so frequently do, this portion receiving but scant attention. When I say finishing, I mean that all amalgam fillings, having first been allowed to set, should be polished with disks or with wood points and pumice. Emery or sand-paper should not be used for an amalgam, as these have a tendency to leave feathery edges, which, contrary to gold, are fatal to amalgam fillings. For a similar reason I would warn fellow students against using a strip of rubber dam for finishing off amalgams when plastic, a practice which in former days I was myself fond of. In short, the edges of the filling should be as perfect as those of gold, and should be able to stand a careful test with the probe.

Another method of finishing amalgam fillings advocated by some, is to pack gold into the surface of the mass when plastic, and although alloys containing a large proportion of gold have not proved successful, it is on these that the present advocates depend for those most desirable luxuries such as "Prevention of Shrinkage," "white and good colour," and "High Finish." Gold foil is used, and a small piece is placed upon the still plastic amalgam, and gently stroked with a warm smooth burnisher, till the mercury in the amalgam absorbs it. This process must be repeated until the mercury can absorb no more, and the burnishing should be continued until the surface of the filling is quite hard and of a golden colour. After crystallization, however, this colour will not be retained, but when at a subsequent sitting the filling is polished, it will be found to receive a mirror-like finish.

To me it is inconceivable how this method can be successful, considering that a proportion of gold amounting to over 5 per cent. acts deleteriously on an amalgam, and the surface of the filling must contain a very large proportion of gold, merging, it may be, into a Binary amalgam. To see then, as I have done, these two statements placed side by side, in a work on amalgams, seems highly paradoxical. I have only tried this method on one filling, and it is only fair to say that at the time, it fully bore out the assertions which have been made in its behalf, but as to whether it would last, I am not in a position to say. I have my doubts. I may add that the origin of this process, as you may guess, has beentraced to Ottolengui.

I have placed the question of finishing at the head of the list because this important point is the most abused, and you must remember that when properly treated, amalgam is one of the most valuable filling materials at our disposal, and that the disrespect attached to it is probably due to faulty filling methods, rather than to any bad quality inherent in the material itself.

As to the composition of amalgams, few, if any original contributions or researches have been made in this branch since I read my paper last winter session, what few there have been, have I am sorry to say, come from the other side of the Atlantic, for instance, I may mention the papers of Drs. Black and Kirk, and Mr. Tomes has also made contributions on the subject.

Foster Flagg has written a very excellent book on plastics, which although now rather out of date contains some valuable information, and is a book which I should advise every student to peruse. The essential constituents of Ternary amalgams are silver, tin, and mercury, which metals although seldom used by themselves are the basis of all amalgams. To them other metals are added to modify the edge strength, setting and colouring of the filling.

The effect of various proportions of the metals entering into the formula, upon the working qualities of an amalgam is extremely puzzling, slight deficiencies in proportions causing widely varying results. Valuable tables have lately been compiled by Dr. Black (*Cosmos*, 1896), which indicate that a nearly definite ratio between the silver and tin should be maintained. This ratio is found to be approximately as follows: Silver 65, Tin 35, when only these two metals are used in making the alloy. Whatever addition of a modifying is introduced, should be at the expense of the percentage of tin. As a class, alloys containing less than 65 per cent. of silver make amalgams which contract, those containing more than 65 per cent. silver result in expanding amalgams. An increase in the ratio of silver above 70 per cent. is followed by enormous expansion of the hardening mass.

Silver is then of the first importance, it is essential to the proper setting of the amalgam, it maintains the bulk integrity of the filling, and it forms with $H_2S$, sulphide of silver, which has therapeutic properties, but unfortunately stains the tooth; this staining may to a certain extent be overcome by the addition of tin which also augments the facility for amalgamation, hastens the setting and diminishes conductivity. The addition of 5 per cent. copper forms an amalgam known as submarine, and it is in accordance with the above rules of the approximate condition, silver 65, tin 30, copper 5. Submarine is, in my opinion the most valuable of all amalgams, and it is, I believe taking the place of copper amalgams in many practices. The copper in it diminishes shrinkage, as copper amalgam itself neither expands nor contracts ; it favours rapidity of setting, and is accredited with power to add to the compatability of the filling material with the tissues of the tooth, and thus better save the tooth. It has also a therapeutic action. It causes a tendency in submarine to gradual discolouration which to a certain extent is under the control of the tin.

For the copper may be substituted gold which aids in maintaining the colour of the filling and increases edge strength. This alloy is known as contour.

Amalgams do not possess the "spheroidal tendency" described in some of the text-books; this property has been shown by Dr. Black to be non-existent, but he has in addition to the properties of contraction and expansion discovered a property, hitherto unsuspected in amalgams, that of "flow," or a change of mass form from molecular motion under stress. This is not limited to a definite degree, proportioned by the stress applied, but it has been found that amalgams yield repeatedly to the same amount of stress when applied at intervals, as in mastication, or yield continuously when the stress is constant. This process is zero in copper amalgams, and is very small in amount in alloys containing 60—65 per cent. silver with 5 per cent. copper and the remainder tin. It will be readily seen that this property exercises a great influence upon the integrity and adaptation of an amalgam, and it is no doubt responsible for the cupping seen on the surface of amalgams exposed to attrition, which has hitherto been attributed to the wasting, such as the formation of CuS. in copper amalgam. This wasting, as I pointed out in my previous paper, takes place only under decomposition, and the masticating surface would therefore be the last place for its occurrence.

As regards edge-strength, what is termed edge-strength of an amalgam is the degree of resistance an edge or an angle of an amalgam mass offers to force which tends to fracture it. The discovery of the existence of "flow" at once modifies all previous conceptions and data regarding edge-strength, for it is evident that a corner or angle might not fracture, and yet might flow under the stress of the impact of mastication. It has been shown that contraction or expansion and flow are the influences which would disturb the maintenance of size and form of an amalgam filling; therefore a minimum of shrinkage and flow are the primary considerations in a satisfactory dental amalgam.

Amongst the abuses of amalgam which I mentioned was "Faulty manipulation," under this head I should like especially to condemn the promiscuous use of amalgams in large crown cavities of molars involving perhaps one or more of the walls of the tooth, with a loss of half or three-quarters of the whole crown. If there is any contraction or expansion or flow in amalgams in a small filling it can be easily understood that whatever change there may be, will be much greater or exaggerated when taking place in a large filling, and I am assured that in a large majority of failures in cavities of this description, this exaggerated change of form may be put down as the cause. To avoid this, therefore, the bulk of the cavity should be filled with an osteo-plastic and the surface only filled with amalgam, or the cavity may be lined with amalgam, the middle filled up with osteo-plastic and the surface again covered with amalgam. But why line the cavity at all with amalgam? you may ask. Firstly to obtain the therapeutic effect of the amalgam on the tooth substance, and secondly, that at no point should the fluids of the mouth, even in ever so small a degree, get access to the cement which they would do if the cement cropped out anywhere.

I shall now turn my attention to the second and less important part of my paper, namely, Basic Zinc Cements. Of these I shall first treat of zinc chloride, and my remarks upon it, considering its extreme solubility in the lactic acid of mouth will be short.

The powder consists of zinc oxide and borax, and is made by thoroughly rubbing together, in a small mortar, two grains of borax and four pennyweights of oxide of zinc. They are then placed in a crucible, and subjected to a glowing heat for from seven to ten minutes; in this way is formed a grit which when cool is again finely pulverised. Sixteen pennyweights of oxide of zinc are calcined for three or four minutes at a moderate red heat and allowed to cool, and are then added gradually to the pulverized grit and thoroughly rubbed up with it. The zinc is calcined for the purpose of freeing it from the moisture which it always absorbs when exposed to the air, and the powder should be kept in a tightly corked bottle in order to maintain this calcined condition.

The fluid is zinc chloride one quarter of an ounce in thirty-two ounces of water.

The chief uses of zinc chloride are as a root filling and as a lining to strengthen weak walls, and sometimes in front teeth for bleaching purposes. According to Ottolengui, it is also of value as a capping for the pulp, as owing to its slight irritative action it is said to possess the power of stimulating the tooth pulp towards the production of secondary dentine, a process which I think exceedingly doubtful, and I consider that the use of zinc chloride for this purpose is risky. In the experience of most, it should never be used near the tooth pulp, but rather extreme care should be taken in avoiding its escape to that situation. Another use of zinc chloride, and in my opinion its most valuable use, is as an obtundent. In most situations in which zinc chloride is used, it has a substitute which may be employed with equal success in its stead, but this is not true of its use as an obtundent. It is by far the most useful obtundent we have, especially in those cases where time is no object. When used for this purpose it should be mixed thin, to allow of the greater excess of zinc chloride, and it may be applied to the cavity mixed with cotton wool. Even after crystallization it contains a slight excess of the chloride, which slowly acts upon the hypersensitive tissue.

As a lining to frail teeth zinc chloride is inferior to the phosphate, but when used it should be mixed fairly thick, and should be allowed to set for fifteen minutes when it is intended to complete the filling with amalgam, and thirty minutes in the case of gold. When used with gold I have found that it has a great tendency to chip and crumble under the plugger, and for this reason the gold must be packed with care.

As a lining to cavities zinc chloride may also be used because of its therapeutic properties, and for this reason it may be perhaps placed before the phosphate.

Oxysulphate of zinc even more than the oxy-chloride is to be regarded as not at all useful as a filling material. But like the oxychloride, is a most valuable adjunct in its proper place. The powder consists of calcined sulphate of zinc 1 part, and calcined oxide of zinc 2, and sometimes 3 parts. The process of manufacture is described in the text books. The fluid is made by dissolving fifteen grains of gum arabic in half ounce of water, and when completely dissolved adding one grain of sulphate of lime. This material is probably the best pulp protector and capper which has ever been used, not only on account of its rapidity of setting and density, but also on account of its perfectly non-irritating properties alike to sensitive dentine and the tooth pulp, and from its admixed sulphate of zinc, it is accredited, with much show of reason with therapeutic value as an astringent anti-phlogistic pulp-preserver. It is mixed in the usual way, only much thinner than oxy-chloride, indeed, it should be little more than milky in its consistency.

It should be worked with the spatula until it begins to give the least perceptible evidence of thickening, when it should be taken upon the end of the spatula and placed accurately in position in the cavity by being pushed off with the end of a probe. It should not be worked after it ceases to flow comparatively easily under this instrumentation.

Zinc phosphate, as in the two previous materials consists of calcined zinc oxide with a syurp solution of orthophosphoric acid. $3\,ZnO$ and $2\,H_3PO_4 = Zn_3(PO_4)_2$ and $3H_2O$.

Many of the specimens of powder are prepared from commercial metallic zinc, and therefore contain the impurities of that metal. Among these is arsenic, so that the presence of arsenic compounds in inferior powders is by no means impossible, which no doubt explains the death of an exposed pulp in teeth which have been filled with zinc phosphate.

To properly make fine specimens of zinc oxide and phosphoric acid are comparatively expensive operations, which will serve to explain the seemingly high cost of fine specimens of cement, and incidentally serve as a warning against the indiscriminate use of cheap cements.

It is therefore wise, prior to placing the zinc phosphate filling in a cavity to line it with one of the quick drying ethereal varnishes, to protect the dentinal walls from contact with the arsenical impurities or with the acid sodium phosphate which may be present. In the use of the cement one of the chief facts to be borne in mind is its solubility in lactic acid. Its clinical use is therefore attended by the greatest measure of success, when placed at a distance from those situations where lactic acid is usually present.

The cement by itself has but limited employment as a filling material, except in the teeth of children, and as a temporary filling in the teeth of adults, but in combinations with other materials such as gold and amalgam it is most valuable, and in some cases there is no substitute for it, as in the filling of the greater portion of extensive cavities which can then be filled and sealed with gold, amalgam, by an inlay or partial crown; and it is indispensable as the retaining medium of fixed bridge work and many forms of artificial crowns.

With the technical operation of mixing you are no doubt well acquainted, but the mixtures should never be made of one unvarying thickness, which I am sorry to say is most frequently done, but should vary according to the various requirements desired of the material. I am of the opinion that the thin plastic mixings are of much more permanency, adhesiveness, and hardness than those of thicker consistency, but unfortunately if this idea was carried out in all cavities, the consequent excess of phosphoric acid or of the impurities sodium or magnesium phosphates would when used in close proximity to the pulp lead to the death of that organ ; therefore when not close to the pulp, and in the fixing of crowns and bridges mix cement of the thickness of thick treacle in cold weather. As the phosphate would be difficult to manipulate when in that state, it should be allowed to set a little before using, exception of course being made with crowns and bridges. When mixed in a thick paste, a ball of oxy-phosphate cement will rebound upon a hard surface, it breaks with a granular surface ; in fifteen minutes it is cut with difficulty. When used in the mouth, the rubber-dam, which is not absolutely imperative with amalgams, is a necessity, and before it is removed the phosphate should have had time to reach the third stage of setting which I have described, and should also be coated with a varnish of one of the following formulæ :—

R Of Absolute Alcohol ... fl. ʒ i
Gum Sandarac ... grs. xxx. Slow drier.
R Of Sulphuric Ether ... f. ʒ i
Gum Copal ... grs. xxx. Quick drier, but has a disagreeable odour.
R Of Methylic Alcohol ... f. ʒ i
Gum Sandarac ... grs. xxx. A good varnish, and fairly quick drier.

Some operators use chloro-percha, others pour melted paraffin wax or wax and resin over the phosphate. In my opinion the best varnish made is a material called Filmogen, prepared by Dr. Schiff. It is somewhat similar to Collodion, but sets with extreme rapidity, and is very waterproof, flexible, and adhesive. It is a solutionof nitrated cellulose in acetone to which is added a little oil. It is also used in dermatological practice, as it dissolves medicaments such as salicylic acid, iodoform, sublimate of mercury, etc., and is useful in cuts and abrasions.

Gentlemen, in conclusion, I hope what I have said has not been wholly without a like interest to some if not to all of you, and I hope you will do your best, as I have done mine, to make the remainder of the meeting a success by having a very hearty discussion.

# BITES AND SOME METHODS OF TAKING THEM.*

By Mr. J. Mahoney.

Mr. President and Gentlemen,—The subject which I have chosen for this evening is one which is very much neglected, although its importance cannot be too highly estimated; so I trust that these few details which I will try to place before you as clearly as possible, will be of use to the student. Not that it will help him much towards obtaining his degree, but one which will be of some practical benefit afterwards.

It is very important to the young practitioner that his first few cases should be successful, and there is nothing which will injure his reputation so much as a badly adjusted artificial plate. Patients may not be able to tell if through some unfortunate conditlon, one is unable to bring to a satisfactory conclusion some operation in filling, etc., but they are able to recognise immediately, whether an artificial denture is comfortable or not; and one badly fitting case may mean the loss of many patients, especially at the commencement of a man's career.

I will endeavour in this short paper to describe the difficulties we are likely to meet with in different cases, and the best methods which my short experience has taught me to overcome them.

Although there is apparently a sameness about the taking of the bite in each case we meet, yet there are many little details which must not be overlooked; otherwise we will meet with failures, and it is to these important details I would call your attention.

For our first case we will take an edentulous upper and lower, to which we purpose to make a full set of teeth. This is, I think, one of the most difficult in which to obtain a correct bite. A person generally is fairly well on in life by the time he or she has lost all the teeth, and then as you know there is much greater movement in the lower jaw than formerly, and this in itself makes it a difficult matter to take the bite.

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* Read before the Students' Society, Victoria Dental Hospital, Manchester.

It is a very good plan to get in the first instance an approximate bite at the visit that you take the impression. This can be done by softening bees-wax in warm water and then shape it up roughly to the mouth and get the patient to bite into it. To prevent biting too close, insert an instrument into the centre of the wax, although the better plan is to get the patient to close until the lips meet naturally.

After having obtained the models and stearined them, fit into the wax-bite, and fix in position in a slab articulator of either plaster or composition.

Presuming that we are going to make vulcanite plates for this particular case, the next step is to make some hard base on which to set the teeth, and what we must aim at is to use some material which will not alter in shape either with the heat of the mouth or pressure required to obtain the bite, and the best of all materials for this purpose is a plate of vulcanite, vulcanized to duplicates taken from the original models.

This is very quickly done by trimming the duplicates very shallow and drying them, and while hot spread a layer of rubber over them which adheres to the hot model. This method of packing saves a lot of time as there is no boiling out to be done, for they can be inserted completely in plaster and put into the vulcanizer immediately. By this means you obtain a plate which fits the model perfectly, and which will hold up in position in the mouth much better than any other materials; this is a decided advantage for if the upper plate will not hold up in position, a wrong bite might be the conquence.

There are other substances which may be used for this purpose and a very useful one is what is known as "Base plate," sold by S. S. W. These are made up in boxes of one dozen and can be obtained at the depots.

This is extremely useful when there is no time to take duplicates and wait for vulcanizing. They are heated as you would a wax plate and pressed to fit the model. The model ought to be stearined, otherwise it will get rubbed very badly. This base plate will stand the heat and pressure in the mouth quite well, but you cannot get a perfect fitting plate as with vulcanite.

It is customary with some men to set up on the base, blocks of composition or wax, but I think it much better to completely set up either the upper or lower, it does not matter which. I have been in the habit of fixing all the teeth on the lower, and the six fronts on the upper, with wax behind to oppose the lower teeth. By this means one is better enabled to notice whether the natural contour of the lips and cheek have been restored, than is possible with simply blocks of wax. The lower teeth also make a perfect imprint into the wax, so that there can be no mistake in fitting together afterwards for the bite in plaster. The great advantage of the rough bite which was taken in wax, is now very apparent, because if you obtained it somewhere near, you have the teeth probably very nearly correctly placed, and the proper position of the teeth is a good guide in obtaining the right distance between the jaws. Without that temporary bite very probably the position of the teeth will be entirely wrong. They may be either too long or short, or too far in or too prominent, and this will mean a re-setting of both cases, which is a waste of time and trouble.

As before mentioned the amount of play that exists in the lower jaw of a patient who is edentulous, is generally very extensive, and it is best to ascertain the amount of movement that does exist, both laterally and before backwards.

As most of you know, when you ask the patient to bite inside, they generally manage to stick the lower jaw as far out as possible and *vice versa*. To get the patient to bite in as far as possible, a good plan is to place a flat instrument, such as a spatula, slantways between the teeth; this will cause the jaw to be drawn backwards in closing. As a rule a patient cannot bite very much further back than the natural so that having obtained the extreme backward position, you can easily get the jaws to close just a little further forward, which will be about the correct position.

If you have the upper teeth placed in the centre, and the lower corresponding to them you cannot have the bite very much out laterally.

Something must be said about the size and arrangement of the teeth. In choosing the front teeth, pick out the upper first according to the physique of the patient. Then find a lower set the canines of which when placed edge to edge with uppers, meet between the canines and laterals. This will cause the first upper bicuspid to meet between the first and second lower, and the second upper between the second lower and first molar, which is the arrangement in the natural teeth. The upper bicuspids and molars should also be arranged to curve upwards, the lowest point being about second bicuspid, and the highest the last molar, and the lowers should have the corresponding curve or arch. In other words, the surface of the upper molars and bicuspids should be convex and the lowers concave.

The extent of the curvature of the arch is governed by the depth of the overbite and the length of the cusps on the bicuspids and molars.

The greater the depth of the overbite the more pronounced is the curve of the arch and *vice versa*.

It is sometimes rather difficult to obtain this proper curve of the arch as the tuberosities are often not absorbed, but whenever it is possible, that object should be aimed at and straight lines avoided. If you examine a perfect set of natural teeth *in situ* you will find that if you throw the lower jaw forward until the front teeth meet edge to edge, the lower third molar and the upper twelve year will also be in contact so that there is pressure at the back as well as at the front. Now if the teeth were arranged in straight lines, this could not be, because there certainly would be a space at the back and all the pressure would be on the front. In an edentulous case, this is a very important point to bear in mind, for if that arrangement is maintained, it will prevent the tilting downward of the upper plate.

I have no doubt some of you have experienced this sort of thing, e.g., patients complaining that when they wished to bite with the front teeth, the upper plate dropped down, which fault I think could have been avoided had some attention been paid to the above mentioned detail.

To make sure that the teeth are in the correct position in order to obtain the above result, a suitable articulation is necessary, and this should represent the movements of the jaw as correctly as possible, so that when the cases are set up, the lower model may be made to move about as the lower jaw does.

The only articulator as far as I am aware, which makes an attempt to represent this movement, is the Bonwill. This gives the necessary movements, but speaking generally, it is not rigid enough, which makes it rather difficult to use.

A very useful and handy articulator is the Ladmore, but this has no side or forward movement. It is a very handy one for working with, as the models can be easily removed and replaced. The distance between them is retained by a small screw which forms a rest. There is a slight movement of the models however, which is liable to make the bite a little wrong, but this can be counteracted by measuring the distance with a compass and marking that measurement on the back of one model for reference.

Also if you wish to open the bite a little, this can be done with a few turns of the adjusting screw underneath.

It seems to me that if we could have in this articulator the lateral and forward movements, we should have a well nigh perfect articulator.

What has been said about an edentulous case will apply in a more or less modified condition, to most other cases, so that there will be no need for repetition.

The next case we shall consider will be an upper with one molar standing, to which we intend to make a vulcanite or metal plate ; and let us suppose that there are not sufficient teeth lost in the lower to need a plate making.

To this molar we should naturally fit a band, and I will try and show you how the presence of this molar and band may be the cause of an incorrect bite. This case should be set up with the six fronts and wax at the back to oppose the lower teeth. When the plate is being tried in, it is quite possible that on account of the band fitting badly, or fitting too tightly, the plate tilts down on the opposite side, and it is to this tilting that I would call your attention, for if the plate does not fit up into position accurately, the bite is sure to be short on that side which tilts ; to remedy which would mean removing and lowering the teeth on that side. So before we get the patient to bite into the wax, we must make sure that the plate goes well up into position and remains there while the bite is being taken. If it is found impossible to keep the plate in position, a good plan is to put an additional quantity of wax on the side opposite to the molar, keeping it rather harder than the other side, and this will force it up into position; or an instrument might be pressed up on that side into the wax.

As another example we might take this same case which we have just considered, with this difference, that there are sufficient teeth out in the lower to need a case some time, but which for various reasons we do not wish to make at the time the upper plate is made; say all the back teeth on one side are gone.

Take a good impression of the lower all the same, just as if you intended making a case to it, and set up in this either in composition or wax, the back teeth, so that there will be something solid to oppose the wax in the upper. This will enable you much more easily to fix the models accurately together afterwards. Also if a good impression were taken of the lower, there would be less likelihood of making the upper so that there is scarcely sufficient room for the lower teeth, through bringing the uppers too low at the back. This of course would not be noticed until a lower plate came to be made.

I think we have considered sufficient examples in detail for our purpose, and now I should like to call your attention to a few points which may occur in nearly every case.

The tilting of upper plates as before mentioned is often the cause of a lot of trouble, even in cases where there are several teeth standing, unless there are teeth on both sides to which we can fasten bands. It will be hardly necessary to enumerate the cases in which this fault is likely to occur. The best thing to do is to be prepared for the trouble, and if possible avoid or counteract it.

Always take good impressions whether a case is to be made or not.

A frequent cause of wrong bite is because very little care is bestowed on the impression of opposing teeth when no denture is required for that portion. The result is that the teeth come out sucked and therefore shorter, which necessitates sometimes a great amount of grinding when the finished plate is inserted, and often molars and bicuspids are put on a case when there is only room for flat teeth. In taking impressions it is often necessary to make a special tray, and when that is the case one is likely to bestow very little care on the first one, so that one ought always to try the cases in with the plates fitted to the good impression ; because if fitted to the first and probably rough one they will not go down into position on the second, consequently a wrong bite will be the result. This is, I think, another very frequent cause of trouble.

When trying in plates always have the models handy, and after the patient has bitten into the wax put the cases on it, and see if they meet together as they do in the mouth, and if there is any discrepancy, allow for it and make a note or mark on the model as a reminder. It may be that the teeth on the model seem shorter or longer, if the former, you may depend that it is because the impression was removed before being set, and if longer, very probably the case or cases were not properly in position. Always have a good imprint in the wax of opposing teeth so that there is no doubt whatever, which is the correct position in which to fix them for the articulator.

In trying in cases there are many points which should be noticed, such as whether the bands fit the natural teeth as they do on the model, and also their suitability in shape to the teeth which they clasp ; but this hardly comes within the scope of this paper.

One gentleman remarked to me once that if he were in a busy practice, he would never try his cases in. I should think that the busier he became, the more need there would be to do so, as he would be less able to notice any peculiarity which might exist, in the hurry of taking an impression.

How he would take a correct bite at the same time, I cannot make out.

It is quite evident that too much care cannot be bestowed on this, the most lucrative branch of the dental profession, and the amount of extra time spent in obtaining the bite, will, in the end, be repaid threefold.

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INDIAN POISONERS.—The drug in almost universal use among Indian poisoners is obtained from various species of datura. It is generally given in the form of an extract mixed with sweetmeats, and acts very quickly, producing unconsciousness and the general appearance of complete drunkenness. The method of preparing the poison is very simple, as the poisoners merely collect the plants, make a very strong decoction, and then evaporate it to a syrupy consistency. They have absolutely no method in their administration of the drug, as they are apparently quite indifferent whether their victims recover from the unconsciousness which they administer the datura to obtain. One young poisoner apparently took very kindly to his trade, for he, when in prison, stated that he "treated" about 500 individuals in five years! His method was very simple, and he took care to devote his attention to comparatively poor travellers, his principal victims being sepoys, muleteers, and native servants returning to their homes with their more or less ill-gotten gains. Dressed as a merchant, he used to join with these simple people for mutual company and protection as is the custom in Eastern lands. After the evening meal he used to produce his hocussed sweetmeats, which would, of course, be readily taken by his victims. They would fall asleep unsuspectingly, and while unconscious he would rob them and skip off to the nearest railway station, and be 50 miles away before his victims recovered consciousness. Many of his robberies were actually performed in the train; leaving his victims to awake in the early dawn "very headachey," perhaps a hundred miles away from their plunderer.

British Journal of Dental Science.

LONDON, JULY 1, 1898.

## GENERAL MEDICAL COUNCIL.

The General Medical Council, which has lately finished its first sitting under its new President, has dealt with a great number of subjects, some of which are of great interest to us. The first meeting was of a somewhat disturbed character, and the personal antagonism of certain members was vividly brought out, but we hope that these ebullitions of feeling—due no doubt to the intense desire to make the Council's work efficient—may be overcome in the general desire for harmonious co-operation. Mr. Horsley—whose request to examine certain documents belonging to the Council was refused—brought up the matter, and it was decided that such inspection could not be permitted by individual members, except by special leave ot the Council. It is probable that the subject will be threshed out in a court of law, and meanwhile Mr. Horsley must abide by the decision of the Council.

The only important business brought to a satisfactory conclusion was the revision of the dental curriculum. In the discussion that took place it will have been seen by those who read the report in our last issue, that when Mr. Tomes spoke, his words were—as might have been expected—terse and to the point. The Council on this question was divided into two camps. On the one side the leader was Dr. McVail, who was strenuous in his desire that the dentist should be a fully qualified surgeon. The other party, with Sir Richard Thorne for a champion, held that the dentist was being made too much of, that his education smacked too much of medical and surgical training, and that the consequence would be that he would become a sort of irregular medical practi tioner, and would poach upon the legitimate province of the medical man. Between the opposing views of these two sections Mr. Tomes had no easy task to steer his course, but this was successfully accomplished. We think that while the dental student of the future will learn a good many things not perhaps directly germane to his craft, yet he will have learnt sufficient to make him aware what his limitations are, and at the same time make him alive to the fact that he can be a great help both to his patient and to the medical man by the knowledge he possesses. As we pointed out in our last issue, it is the dentist who frequently has the first opportunity of recognising oral lesions when they may be in the early stages, and consequently favourable for treatment. The time has gone by when the dentist was looked upon as a mere extractor or mechanic, and the more highly educated he is the less likely will he be to arrogate to himself functions for which his training does not pretend to fit him.

The petitions of Messrs. Royce, Merritt, Bush and Oldfield to be placed on the Dentists' Register were not acceded to, thus reversing the recommendations of the Executive Committee. It is to be hoped that this is the last attempt that will ever be made to place unregistered men on the register by any means other than those of entering by the "front door" of curriculum and examination. We are glad to see that the authority delegated to the Executive Committee to act for the Council has been rescinded. The Amendment of the Companies' Act is a matter which affects us very closely. England is behind most other countries, in that the laws do not effectively prevent unqualified persons from practising. The President, Mr. Tomes, and Mr. Horsley may be depended upon to do their utmost to induce the Government to insert a clause in the Bill now before Parliament so as to prohibit registered Companies carrying on medical and dental practice ; so doing away with what has become a crying scandal.

The Dental Committee have under consideration the question of the employment by dentists of unqualified assistants, and we hope that, without making matters too hard for those dentists who employ unqualified help under their immediate supervision, "covering" will be stringently put down, and that the man who "runs" a number of branches with unqualified assistants will find that his conduct comes under the head of "infamous in a professional sense." We are also hopeful that the conduct of medical men who give anæsthetics for unqualified dental practitioners will also come under the same heading.

We have reason, as a profession, to congratulate ourselves on the progress which dental affairs have made in this Session of Council. While admitting that the organisation may not be perfect, yet we think that even the opponents of the principle of the Council having control of our affairs must allow that an honest endeavour has been made to treat those matters which concern us in a proper spirit.

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A Golden Wedding.—We understand that some of the friends of Sir Edwin and Lady Saunders have formed the intention of commemorating the approaching fiftieth anniversary of their wedding day, and a small committee has been formed for the purpose, of which Mr. T. A. Rogers, of 23, Endsleigh Street, W.C., has kindly consented to be chairman, and Mr. Ashley Gibbings, of 18, Stratford Place, to be treasurer. The subscription is not to exceed one guinea. These gentlemen will be happy to give any further information desired upon the subject.

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A Substitute for Rubber-dam Ligature.—A useful hint is to keep an assortment of small rubber rings on upright pieces of wood or steel, the size of a match to use for ligaturing rubber dam. They slip on and off easily, and do not hurt the gum like silk. They are handy, too, in keeping in dressings, etc., over temporary preparations in large and shallow approximal cavities. One can cement them, if desired, over the cavity.

MOUNTING CARBORUNDUM WHEELS.—If the wheel is warmed and the hole filled with melted sulphur, it may be permanently mounted on a chuck, truing it by revolving it in a lathe or the engine, and when true, dipping it into cold water. Sulphur is said to be superior to shellac as a mounting agent.

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HOW TO USE UP OLD CARBORUNDUM WHEELS.—Dr. C. H. Tillotson recommends in gaining access to the pulp to grind away the overhanging walls with sharp, keen-grit carborundum points kept wet with water. Mould them as needed from carborundum, softening a small piece and placing it on a mandrel and passing it through the flame of the spirit lamp till the shellac is partially melted; then mould it deftly between thumb and finger, and while yet soft, place in the hand-piece and revolve under light pressure to true up. Such a carborundum point, he states, does not heat or jar the tooth as much as the steel bur, and grinds the enamel faster than a bur.

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THE NEWCASTLE DENTAL HOSPITAL.—The annual report of the Newcastle Dental Hospital is to hand. During last year 2,464 patients were treated, making a total of 5,879 since the hospital was opened 3½ years ago. The committee deeply regret the death of Mr. J. C. S. Harper, an hon. dental surgeon. The statement of accounts shows that the receipts for the year were £128 12s. 2½d., which, together with a previous balance of £11 12s. 8d. made a total of £140 4s. 10½d. whilst the expenditure amounted to £127 5s. 4½d. Donations reached £45 14s. 6d. and subscriptions £63. As the objects of the hospital are to provide gratuitous advice for really poor and deserving patients, and to train students in connection with the Hospital, it cannot be said from the above figures that the institution suffers from an excess of pecuniary support. The Hospital, however, pays its way, which is more than many other charitable

Institutions can boast. On the other hand, we are often told that a Hospital without a flourishing debt is in a poor way, as the charitable public does not give, under those circumstances.

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CURIOUS RESULT OF AN INJURY TO A TEMPORARY INCISOR. —At a recent meeting of the Odontological Society of Indianapolis, Dr. Merit Wells reported a case where a child less than two years of age, while swinging a bottle up and down, struck one of the deciduous central incisors with such force that it was driven into the alveolar process so that the crown was almost totally obscured. He supposed that the accident would result in the total loss of the deciduous tooth, and probably in death of the permanent tooth germ. Strange to say, the deciduous tooth gradually regained its normal position with the pulp living, and the permanent central is now fully developed and in position.

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DENTAL PRACTICE IN ITALY.—We recently published a letter from Mr. Charles William Dunn, of Florence, who upholds the skill of Italian dentists. That the curriculum leaves something to be desired is nevertheless emphasized by the following communication to the *British Medical Journal*:—"Although at present it is lawful for foreign medical practitioners in Italy to minister to people of their own nationality, they are forbidden under the pain of prosecution and fine to so much as administer first aid to an Italian in a street accident. As regards the practice of dentistry the regulations are even more stringent. By the law of 1888 an examination without a prescribed curriculum was held for those wishing to practise as dentists. This was practically valueless, and was abolished probably as the result of the action of the Italian Odontological Society, which lodged with the authorities a protest against the ireegularities surrounding the granting of this diploma. In 1891 a new Act came into force making it compulsory for those practising as dentists to have passed the examination for the *laurea* of one of the Italian Universities. This is not the place to discuss whether it would have been better to have established a special dental curriculum and diploma, as has been done in Great Britain; but, following the decree, some establishments should have been found in which the science and art of dentistry might be learned. This, however, is not the case; the theoretical lectures (*corso libero*) which are delivered at several of the universities, cannot in any sense be said to fulfil the requirement. The practical result has been that Italian dentists have had to seek such instruction in other countries; we believe we are right in saying that several have come to England for the purpose, but have been content with six months' instruction, while the Dental Hospital course in this country for those who have taken the Conjoint diploma extends over two years. A dentist who had practised in one Italian city since 1869, and who possessed the English license in dental surgery, and was duly registered on the books of the municipality, was prosecuted for illegal practice. His case was brought before the Prætor and dismissed. The public prosecutor then appealed to the tribunal, and the former verdict was supported. The case was subsequently taken before the Court of Appeal, and finally to the Supreme Court of Cassation in Rome, with the result that the first verdict was maintained. Those who commenced practice before 1888 cannot be disturbed. As regards the future, however, there seems to be no doubt that only those possessing a national medical degree will be permitted to practise dentistry in Italy; it is imperative, therefore, that some teaching centres shall be established where dental surgery shall be practically taught. It is possible that competition may ensure doctors who wish to practise dentistry securing the education necessary to do so, but that in no sense relieves the nation of its responsibility. Dental hospitals, or large and well-regulated dental departments of general hospitals, are urgently and instantly demanded."

A PATIENTS' GRATITUDE.—The following anecdote appears in a recent number of the *Cornhill Magazine*:—The doctor told me this morning an anecdote which may interest psychologists. He had been attending for some considerable period a country parson, and according to a fashion now becoming antiquated, attending him *gratis*. When in due course the parson died, his widow wrote to enquire how much the doctor would allow her for the medicine bottles. When I recalled Wordsworth's lines:

> Alas! the gratitude of men
> Has often left me mourning.

the doctor observed, first, that Wordsworth was not in medical practice, and secondly, that he says nothing about women. In regard to the first point, I believe it is a fact that country doctors find great difficulty in collecting their fees; and in regard to the second, as gratitude depends upon imagination, it may well be that women, having less imagination than men, are less grateful."

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Mr. R. J. BELL, dental surgeon, of Grahams-town, South Africa, was found dead in a railway carriage at Rosmead Junction, in the Port Elizabeth train, shot through the head.

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Sir WILLIAM TURNER, President of the General Medical Council, received the honorary degree of LL.D. of Cambridge University on June 15th, in company with the President of the Royal Academy, the Master of the Rolls, Sir Henry Irving, and other distinguished persons.

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DENTAL HOSPITAL OF LONDON, LEICESTER SQUARE.—A donation of £250 has been contributed to this hospital by the trustees of Smith's (Kensington estate) charity.

# Manipulative Micellany,

It is requested that all new instruments or articles which it is wished to have described under this heading, be sent *for inspection* to the publisher not later than the 8th and 23rd of each month; they can be returned in a few days. Where, from the size or otherwise, this is impracticable a clear and minute description will be sufficient; the sole object being to give practitioners a description of everything new, on its own merits and without any intention or wish to pit one against another. All makers, vendors, and inventors, are invited, with strict impartiality, to contribute towards this end.

## POULSON'S RUBBERS.

We have received recent samples of several of these from George Poulson, of Hamburg. Amongst them are four shades of his "Quick Vulcanizing" rubber, the result of many years experimentation. 15 to 20 minutes at 335° to 340°F., will, it is claimed, produce an elastic strong vulcanite. Another material also useful in time-saving is a form of rubber called "Coralit." From the pieces we have seen we believe that very good results can be obtained. It vulcanizes in one hour at 320° F. A portion of a sheet the right size is softened by dipping in hot water about 170° F., and pressed on to the model upon which the teeth may then be mounted, as in the case of a wax base-plate. After the flask has been filled, it must be separated and the coralit in contact with the counter-die cleansed before vulcanizing.

## VARNISH AS A STARTER FOR FILLINGS.

When using any of the crystal golds, in starting a large filling, if a small quantity of sandarac varnish is placed on the floor of the cavity, and the first pieces of gold placed on it, with gentle pressure, it will facilitate the starting of the filling. The gold can be built across a considerable space from one retainer to another with as much ease as if a plastic were being used. Aside from this value of the varnish it acts as a protection to the dentine,

# Abstracts of British & Foreign Journals.

## MEMBRANOUS STOMATITIS.

The frequency of true diphtheria and other inflammations attended by formation of false membranes in the throat is in marked contrast with the rarity of such affections in the mouth. In the *Journal of the American Dental Association* March 19th, 1898, Dr. L. Jurist has published a case of membranous stomatitis which, although it clinically resembled diphtheria, was caused by the streptococcus pyogenes. A woman, aged twenty years, had an attack of vomiting and diarrhœa which yielded to treatment. Shortly afterwards the tongue began to swell; it increased to such an extent as to cause alarm lest she should be choked. The tongue was enormously swollen and protruded in a thick mass from the mouth; the appearance of the patient was anxious and distressing. The floor of the mouth and the under surface of the tongue were covered by a thick greyish membrane. There was a repulsive odour from the breath, the pulse was rapid and feeble, and the temperature was 101 F. For two weeks the general condition remained the same. The membrane spread to the inner surfaces of the lips and cheeks. There were frequent slight hæmorrhages which became freer if portions of the membranes were forcibly detached. The submaxillary lymphatic glands were enlarged, and a well-marked œdema involved the entire face and neck, extending from ear to ear. As the patient improved an examination of the throat became possible. Two oval, distinctly outlined patches were seen on the hard palate but none on the soft palate or tonsils. After the failure of other remedies the application of nitrate of silver combined with the administration of chlorate of potash proved successful. Twice there was copious bleeding from ulceration of the tongue which was beneficial, being followed by subsidence of the inflammation. Bacteriological examination showed streptococci in conspicuous numbers but no diphtheria bacilli. A case of true primary diphtheria of the mouth has been reported by M. Thiercelin. A woman complained of pain on opening the mouth and had anorexia and a little fever. The lower surface of the tongue, which was not swollen, and the floor of the mouth were covered with a whitish-grey membrane. There were membranes on the cheeks, gums, and lower lip. The disease did not extend beyond the pillars of the fauces. The submaxillary lymphatic glands were swollen, mastication was impossible, and intense fœtor and salivation were present. Diphtheria bacilli were found in abundance in the membrane. M. Sevestre and M. Gaston have reported a series of cases of membranous stomatitis which constitute a special form denominated by them "stomatitis impetiginosa." It attacked debilitated children, especially those recovering from measles or whooping-cough. A whitish adherent membrane similar to diphtheritic exudation formed. The tongue was rarely attacked. In nearly all cases the disease was associated with impetigo of the face. The staphylococcus pyogenes aureus was found in every case.—*Lancet.*

## COCAINE POISONING.

Cases are from time to time reported of deaths from cocaine poisoning. Many of these have occurred in medical men who have treated themselves whith the drug for purposes of relieving pain and have by accident or design injected an overdose. The body of a young medical man was found at a railway station. In his hand was a hypodermic syringe containing morphia which he had evidently been about to inject as an antidote. He had been accustomed for some time to inject cocaine for the relief of neuralgia. On April 18th, 1898, Dr. G. Danford Thomas held an inquest at Paddington on the body of the wife of a medical man who had died after drinking a solution of cocaine. Eight weeks previously she had swallowed a quantity of laudanum from a phial which she found in her husband's bag, assigning no reason for doing so but telling him immediately after the act. Antidotes were applied and she recovered. On the evening of April 13th she remarked to her husband: "I am feeling ill," and she produced a small bottle from her pocket containing a solution of cocaine which she had abstracted from the bag whence she had obtained the laudanum previously. Both bottles were duly labelled

"Poison." She said she had taken cocaine and asked that a medical man might be fetched, but all treatment was unavailing. All experience shows that a good deal of care is requisite in administering cocaine as it has again and again happened that small amounts of the alkaloid have given rise to the most threatening symptoms. Two-thirds of a grain injected subcutaneously caused the death of a woman, aged seventy-one years, in five hours, and a man died almost immediately after taking 22 grains by the mouth. Persons, however, habituated to its use can take increasingly larger doses. Among the most striking manifestations of its threatening characteristics are abnormal exaltations of the feelings, loquacity accompanied by mental incoherence, severe sweating, fall of temperature, shallow and irregular respiration, dilatation of the pupils, disturbance of vision, nausea, feeble pulse, and ultimately collapse. In persons suffering from these symptoms stimulants should be given, the inhalation of chloroform has been tried to relieve the spasms. Nitrite of amyl has also been suggested. Some medical men make it a practice to give a preliminary hypodermic dose of from $\frac{1}{8}$ to $\frac{1}{4}$ grain of morphia, according to the age of the patient. The physiological antagonism between the drugs is pronounced, so that while morphine is not an absolute antidote it is at least most valuable in counteracting the toxicity of cocaine.—*Lancet.*

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## PULP MUMMIFICATION.

A writer in the *American Dental Weekly* says: Having tried "Söderberg Method" in a few cases of inferior molars, clearing the pulp chambers and working the paste into the canals, I consider myself competent to say that however well it may work in some cases, it is a total failure in some others and too unreliable to be continued in practice.

There are other and better methods where mechanical approach to the apices of roots is impossible, well-known and well practiced by many dentists. Therefore why advocate a method that is doubtful at the best?

Every careful operator tries new methods of this character in a tentative manner and he should put to proof a very few cases that are selected with a view to close observation. In fact without proof of great excellence such methods in general practice should not be adopted. If all such trial cases are charted with more than ordinary care, and one out of four cases proves to be a failure after a period of a year, that one failure should settle the whole matter.

I contend that where it is impossible to burn out by chemical and electrolytic means such tissue as cannot be reached by mechanical means—and there are several excellent ways of accomplishing this—one can only trust to nature or the forceps.

## GOLD CROWNS VS. FILLINGS.

An editorial in the *Dental Weekly*, says:—

The modern gold crown in honest hands has been a blessing to mankind, in that it has enabled the skilled dentist to save many teeth for years of usefulness which otherwise might have been doomed to the forceps; but in dishonest hands it has been a curse to the profession and to mankind in that it has been a stepping-stone for charlatanry, which could not have existed except by this deceptive glittering display of gold. I venture the assertion that the gold crown as abused in this day is destroying three teeth where it is saving one. If this statement be true, it is appalling, and yet the facts which present themselves to us day by day justify such assertion. Teeth are now being ground out of shape and gold crowns shoved on and cemented where the circumstances of the case do not justify it at all.

In most of these cases no attention is paid to fit. The edges of the crown being driven into the gum, the defects are hidden at least for a time, and some brand of sticky cement will hold it in place until the tooth becomes loosened, which generally is not very long. There is no class of work in dentistry that will so effectually conceal the botchiness of its construction from the deluded patient as modern crown and bridge work. This fact has been observed by the Shylocks in the profession, and the abuse to which it has been subjected is something terrible to behold.

A patient presented with a cavity in superior bicuspid, which should have been filled. Some argument ensued in regard to price. She claimed she could get the entire tooth covered with gold for the amount asked for filling the cavity. She did get the work done at a "parlor."

In twelve months she came back to see what kind of an appliance could be made to take the place of the tooth, which she removed with her fingers, crown and all. The band hung off on the palatal side at least an eighth of an inch from the neck of the tooth. A ball of cement had been forced up under the gum as large as a small buckshot.

## IMPURE CHLOROFORM.

Professor Ramsay has, in the pages of the *Nineteenth Century*, taken the public into his confidence concerning the importance of the use of pure anæsthetics. It is not very long ago that a similar stir arose when the Pictet method of preparing chloroform was brought prominently before the profession. It was hoped that with purer anæsthetics the era of safer anæsthesia would be with us, but the millennium appears to be even yet deferred. There is no doubt, however, that the purity of the anæsthetic is a matter of no passing concern to the patient, and therefore requires heedful attention. The coughing, headache, and vomiting which follow the use of rough or impure anæsthetics can be prevented in some measure by employing drugs free from obnoxious impurities, and so we welcome Professor Ramsay's hints upon the subject. Impurities are classifiable as (1) those of manufacture and (2) those due to decomposition after the drug has passed from the hands of the manufacturer. The first catagory do not interest us, as there are now so many trustworthy makers that chloroform pure, save for a small percentage of alcohol added to prevent spontaneous decomposition, is easily to be obtained. When, however, the bottle containing chloroform is once opened, oxidation readily takes place, with the formation of hydrochloric acid and carbonyl chloride. Such bodies cause coughing and painful respiration. Small rooms illuminated by gaslight in which chloroform is evaporated rapidly become filled with irrespirable gases due to the chloroform being burnt, and grave inconvenience is caused to all who are in the room. Ether, according to Professor Ramsay, also decomposes after prolonged exposure to air. As a result a "sharp-smelling compound" is formed, which probably is ethyl peroxide. Cough and an obnoxious flavour are the signs of the presence of this body. Professor Ramsay suggests simple means to maintain the purity of the anæsthetic. A little slaked lime in the chloroform bottle and a little metallic mercury in the ether bottle will get rid of all impurities. The slaked lime removes the hydrochloric acid, and destroys the carbonyl chloride, while the mercury oxidises and so precipitates the peroxide of ethyl, which subsides as a dirty black precipitate. Professor Ramsay's suggestions were called forth by an article published in a previous number of the same periodical by a lady who, having taken chloroform both in England and in India, found that she did to with greater comfort in the East. This observation, interesting enough in itself, was followed by an expression of opinion that if the report of the Hyderabad Chloroform Commission were studied by English anæsthetists they would administer the anæsthetic with greater comfort and safety to their patients. The President of the Society of Anæsthetics, Dr. Dudley Buxton, replied in the following number of the *Nineteenth Century.* and pointed out that the value of the Hyderabad Commission's work lies in the fact that it emphasized the importance of watching the respiration, and so confirmed the teaching of Snow. He contends that the open method of giving chloroform is neither novel nor safe, and he concludes that the pronouncement that chloroform only kills by arresting respiration is not consonant with the present state of knowledge. He takes the opportunity of urging the importance of thorough instruction in the administration of anæsthetics, and maintains that a certificate of efficiency should be required by the medical examining bodies.—*British Medical Journal.*

## THE PRODUCTION OF CHLOROFORM ANÆSTHESIA.

By Edward Lawrie, M.B. Edin.,
Surgeon-Lieutenant-Colonel, I.M.S.; Residency Surgeon,
Hyderabad, Deccan.

The following are the notes of chloroform administration at the Afzulgunj Hospital during April, 1898. The chloroformist for the month was Olivia Correa, a third-year student at the Hyderabad Medical School :—

1. Total number of cases chloroformed during the month, 221.
2. Cases of partial anæsthesia only for brief minor operations, 88.
3. Average age of patients chloroformed, 24 years.
4. Children below the age of five chloroformed, 48.
5. Average time to produce anæsthesia, 3 min. 2 sec.
6. Average time to produce anæsthesia in children under five, 1 min. 15 sec.
7. Average time to produce anæsthesia in adults, 3 min. 36 sec.
8. Morphine administered beforehand in cases, 3.
9. Average quantity of chloroform required to produce full anæsthesia, 2·95 drachms.
10. Rate in minums of chloroform applied to the cap per second, 0·96 minum per second.
11. Average total amount of chloroform employed per case, 3·4 drachms.
12. Average duration of operations, 12 min. 13 sec.
13. Cases in which struggling occurred, 50.
14. After effects, vomited, 3.

The chloroformist at the Hyderabad hospital is as a rule a fourth-year student, but this session we have been obliged to entrust the anæsthesia to third-year students as all our senior students are out on plague duty in the districts. The plan of chloroformisation we employ is that of Syme. Syme's method of giving chloroform consists in keeping the patient's breathing regular under all circumstances; in entirely disregarding the heart and circulation as factors in the administration; in never pushing the inhalation beyond the point where anæsthesia is complete; and in maintaining the narcosis as long as the operation lasts at the "anæsthesia level."—*The Lancet.*

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## AMALGAM VS. GOLD.

By Dr. Osmun.

I have had proof that amalgam fillings had been detrimental to the health of patients. I have had, perhaps, a dozen cases in my practice, cases that had been referred to me by physicians who stated they thought the mercurial fillings had proved detrimental and asked me to remove them. Upon the removal of the mercurial fillings and the substitution of gutta percha, cement or gold, in these cases there occurred a cessation of the troubles which had existed. I do not believe that ordinarily, the mercury in such fillings is detrimental to the health of the patient, but idiosyncrasies of constitution sometimes exist, which seem to contraindicate any combination containing mercury as we find to be the case with other drugs ; for example we find patients who cannot tolerate morphine, which acts in such individuals more as a stimulant than a narcotic.

I also believe that in the every-day practice mercurial fillings are, in the main, detrimental to tooth substance. As I continue in practice my experience teaches me that gold is the best material to use in a tooth that needs saving. Not only my own experience, but the work that I see from my brother practitioners, justifies me in taking this position. Among my own patients for whom I did work five or ten years ago, where I put into the mouth five or six gold fillings, and six or seven amalgam fillings, when they come back to me, I find that the percentage of successes with gold is larger than the percentage of successes with amalgam. I observe another thing ; that the margins around the gold fillings are just as good, when there has not been a recurrence of decay, as they were when the gold was first placed in juxtaposition with the tooth substance. With few exceptions I have never yet found that to be the case with amalgam fillings. I also note that when I take out an amalgam filling, which has been in the tooth for some time and replace it with a gold filling, it will not serve as well as it would probably have done had the amalgam filling never been placed in the cavity. This is my experience, day after day ; and I am using more and more gold, and less and less amalgam, every year ; yet I said on this floor, only a short time ago, that amalgam is one of the necessities of the dentist ; he could hardly practice dentistry without it, any more than he could practice dentistry without burs, excavators or rubber dam ; it is absolutely necessary, he needs it and must have it ; but I contend that the more gold a dentist uses in his practice the greater the percentage of successes he will have.—*Items of Interest.*

# REPAIRING RICHMOND CROWNS.

Dr. T. Ledyard Smith, in *Items of Interest*, offers a unique method of repairing these annoying accidents:

"To repair one of the four superior incisors that has a Richmond crown from which the porcelain has been scaled or broken, perhaps by too prominent occlusion with an inferior tooth, the following method is suggested to save removing the gold fixture and pin, which may be difficult if the pin be close fitting and of platinum:

Cut a longitudinal slot in the remaining backing, cutting with a file so that the under side will be wider than the top, of the dovetail order. Select a tooth that will be as thin as the one broken, and with longitudinal pins, to which solder a little platinum trough or box the shape of the dovetail slot in the backing. A long narrow piece of platinum should be fitted over the pins and the pins spread slightly to hold it; paint this with borax cream, also the inside of the little platinum box, which will be wide across the top and pressed in close to the pins at the plate. Solder, and finish with file to conform to the slot. Set it with cement.

If done accurately, it will be neat, strong and serviceable, and the neck will fit under the band as before."—*American Dental Weekly*.

# A METHOD OF USING DE TREY AND OTHER FORMS OF GOLD.

By Dr. Gaylord.

Many of us have misgivings about placing crystal gold at the cervical wall of our cavities. To those who have and practise using soft gold, by which I mean gold that has not been annealed, I would say place it upon the floor of the cavity and gently pack it in place without condensing. Make your cavity one-third full, then place upon it a light thickness of De Trey gold. Commence with broad-faced pluggers and gradually knead it in position. What I mean by kneading is gradual pressure upon the gold, carrying it into the cavity; then increase your condensing force until you are satisfied it is sufficiently condensed. The De Trey gold acts as a hu upon the soft gold and does not allow it to roll. If you want to finish it in that manner you can do so and work very rapidly.—*Cosmos.*

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## DENTAL SURGERY AND HYGIENE.

During the International Congress of Hygiene and Demography recently held at Madrid an effort was made to establish a direct connection between dental surgery and hygiene. In respect notably to the systematic surveillance and care of the teeth of children at school much is done, but much more could be done to save the coming generation from one important cause of ill-health. Then, also, dental surgery is connected with special occupation diseases such as the necrosis prevalent among the match-makers. Speaking generally, the inferiority of the teeth of the present generation as compared with the teeth of previous generations is a very distressing symptom of the effects of modern life and the study of its causes involves at once questions of dental surgery and of hygiene. In view of these considerations it was felt that dentists should participate in the labours of the Congress of Hygiene. Some two years ago the Spanish Odontological Society was established, and this organisation determined to hold its first general assembly at Madrid at the same time as the Congress of Hygiene. But as there are many dental questions which do not come within the scope of hygiene the dentists met separately at the Royal Academy of Medicine. It was originally intended that when papers were to be read establishing a direct connexion between dental surgery and hygiene the dentists, who were all enrolled as members of the Congress of Hygiene, should go over in a body to the latter Congress. But at the last moment this was not found to be practicable, so the papers in question were read at the Academy of Medicine, with the understanding that they will be published in the official record of the Congress of Hygiene. There were altogether 121 members of what might be called the dental section of the Congress, including some foreign guests. Among the latter Dr. G. Cunningham of Cambridge read an interesting paper on the Teeth of School Children, insisting on a more systematic and wide-spread inspection. Dr. Bofill spoke on Antiseptic Dentifrices, demonstrating the inutility of the nostrums offered to the public. Dr. Aguilar read a paper on the measures to be taken to prevent the disease which is but too well known in the east of London under the popular denomination of "phossy jaw." He suggested that match-makers should not be allowed to work more than fifteen days consecutively and that then they should keep away for fifteen days. He likewise insisted that dental inspectors should constantly examine the mouths of such workers and remove all roots and decayed teeth. Dr. Boniquet, of Barcelona, spoke of the mouth as the unsuspected cause of many illnesses. For instance, he described eight cases of quinsy which he ascribed to bacteria, which sometimes were able to work their way from the root of a bad tooth, and passing through the connective tissues became the focus of an abscess situated at some distance. Dr. Hohr, a Spanish dental surgeon of German descent, read a paper on a microbe which he claims to have discovered and names the amœba buccalis. According to Dr. Hohr this microbe is in its normal condition when in the human mouth and there it does no harm; but when it reaches the intestines it gives rise to the amœba coli and may excite dysentery. The resisting power of the mucous membrane of the mouth is greater than that of the intestine. If this organism is in the mouth it will be conveyed to the intestine with the food or saliva and should the subject be predisposed dysentery will result. This assertion is based on the similarity of both microbes. Dr. Hohr therefore argued that if the teeth are kept in perfect order the amœba buccalis will not be found in the mouth; consequently it will not be conveyed to the intestines, and even if the subject is predisposed to dysentery he will escape. Thus dysentery may be prevented even where the predisposition exists by the active intervention of dental surgery. Since the conclusion of the Congress of Hygiene the Spanish Odontological Society have met again and have decided to hold another Dental Congress in two years' time at Barcelona. Foreign visitors will be welcomed at this gathering.—*Lancet.*

# Reports of Societies.

## STUDENTS' SOCIETY, NATIONAL DENTAL HOSPITAL.

The last meeting of this Society was held on Monday, June 6th, 1898. The President, Dr. Pare, in the chair.

The Minutes of the last meeting were read and confirmed.

Visitors, of whom there were several present, were welcomed.

Messrs. H. Hiorns, E. G. Simmonds, and W. H. Rogers were proposed members of the Society to be balloted for at the next meeting.

Mr. Sidney Spokes showed models and photographs of interesting cases. Mr. H. Rose showed a lower wisdom tooth with six roots, probably a supplemental geminated with a wisdom.

Mr. Sidney Spokes proposed, and Mr. S. Rose seconded that in future the meetings of the Society be held on the first Friday in the month, as was suggested at the last meeting of the Society, and upon being put to the meeting, the proposal was carried unanimously, the necessary notice having been given.

The Hon. Sec., Mr. Edward Thorne, made the following statements :—

There would be a meeting in July this year as there was no meeting in May.

The next meeting would be held on Friday, July 1st., and the evening would be devoted to Impromptu debates ; the subjects would be chosen by a committee to be appointed. All members are invited to join in the discussion, but only present students at the Hospital would be entitled to the prize offered by Mr. Thos. G. Read. Each speaker would be allowed five minutes.

The date of the picnic this year had been fixed for Tuesday, June 28th, and a committee consisting of Messrs. Griffiths, Bennett, Birkett and Thorne, with W. H. Must as Hon. Sec. had been formed.

The Chairman then announced the programme for the evening. It was, he said, intended to make the evening a practical one, and with this object Messrs. Ash kindly sent their representative, who gave a demonstration with an electric crown furnace.

The Dental Manufacturing Company also sent an exhibition of novelties.

Messrs. S. Rose, and W. H. Must showed microscopic sections.

Dr. Pare then gave a demonstration in Cataphoresis, explaining the *modus operandi* of the apparatus. The demontration was very successful, especially considering the patient was in a very highly nervous state through suffering from toothache. The demonstration was closely followed and much appreciated, and the meeting terminated at a late hour.

# Dental News.

## OXFORD COUNTY COURT.
## DISPUTE OVER A SET OF TEETH.

George Hayward, bootmaker, of 39, Magdalen Road, sued Lionel E. Lynn, trading in Oxford as the American Dental Company, High Street, for the return of £3 10s. less 6s. discount, by reason of the defective nature of goods supplied him.

Mr. Horace Fisher appeared for the plaintiff, and Mr. E. H. Fuller represented the defendant.

The plaintiff said on March 2nd, 1897, he went to the defendant, and said he wanted some false teeth, which would assist him in masticating his food. On that day he had an old tooth removed by the defendant, who, however, extracted it with his fingers, making his mouth so sore that it was impossible to take the cast of the mouth for the teeth that day. Witness went on the following Tuesday, but the sore was just as bad as before. At the first interview the defendant said the price of the teeth would be £5, but when the witness said he could not afford it, he reduced the amount to £3 10s., of which 10s. was then paid as a deposit. In October defendant took a cast of his mouth, and at a subsequent date put the teeth in, remarking at the time that witness would find them very awkward, as he had never worn false teeth before. Mr. Lynn then made out the bill "as fast as he could," and witness paid the remaining £3, receiving 6s. as discount. About three o'clock the same afternoon he noticed the teeth were not as they should be, and he went back to the defendant, to whom he said, "Why, the blessed things ain't worth 3s. 6d." Lynn said, "All right, I'll make you another set. I expected you back, but don't say anything before my customers, or you might do me an injury." He then took another cast of witness's mouth, and supplied him with another set. This set also did not fulfil the purpose for which they were intended, and he could not eat with them. Lynn did various things to the set, and on December 18th he said he would put a smaller sucker on. With this alteration witness was still unable to eat with them. He took them back the following January, and on February 1st received a letter from the defendant, who enclosed the teeth, and said he had done all that was possible, and could do no more. The time he had wasted on them was worth more than witness had paid.

Cross-examined.—These were the first false teeth he had had, and he tried about twenty times to eat with them. In March he paid 10s. on account, and between that time and October he went three times to have the cast of his mouth taken. He was suffering from erysipelas at the time, but he did not know that the defendant had contracted it from him, and had been laid up for a fortnight. He did not know that erysipelas affected the shape of the mouth. The case was fitted in November, and Lynn took a lot of trouble in fitting. He did not pay his money until after the fitting took place. It was not true to say that witness did not go to the defendant's premises for three days after the case was first fitted; he went the same day. On the following Tuesday Mr. Lynn said, "I'll make a fresh impression," and this was taken on November 23rd. The new case was made within four days. Witness was still suffering from erysipelas, and he went back to the defendant to tell him the teeth still hurt him. He had never tried to "ease" the teeth himself, nor had the defendant smoothed them over after he had interfered with them. The shape of his mouth was not constantly altering. He had never asked the defendant to take the teeth back because he had been out of work and could not afford to pay.

Re-examined.—He had been in regular work, and he had never touched or tampered with the teeth.

Mr. Baron Franks, who took the Jewish oath, said he had been practising as a surgeon dentist for a great number of years. He saw the set of teeth supplied by the defendant to the plaintiff, and did not consider them to be a perfect and proper set. The pressure was inconveniently irregular, so that a man could not obtain any masticating power on account of defective mechanical power.

Mr. Fisher.—What do you say as to the price of the set. You have heard that the plaintiff paid £3 10s., were they worth anyway near that sum?

Mr. Franks.—Well, if the set had proper mechanical powers and fitted the man I should have considered them to be worth 25s.

And intrinsically?—I would rather not say anything about that.

Cross-examined—The mouth of a man suffering from erysipelas might alter considerably. His qualification as a dentist was registered in 1877. He did not advertise extensively, nor did he advertise cheap teeth.

Witness added that he came there on subpœna.

Mr. Fuller, for the defence, said when the plaintiff was fitted he was suffering from a complaint, which he never disclosed, and which put his client to considerable loss. After the plaintiff had brought the teeth back several times he admitted to Mr. Lynn that he had tampered with them.

Lionel Eustace Lynn, the defendant, who affirmed, said he had been trading in Oxford for five years. He first saw the plaintiff on March 27th, when he extracted a tooth with the forceps. No proper dentist would take an impression of the mouth on the same day that a tooth was extracted, and that was why he did not. The price of the teeth was agreed upon, and the plaintiff paid a deposit of 10s. Witness had to write to him several times before he could take an impression of the mouth. At length he fitted the teeth, and plaintiff paid for them. It was untrue to say that Hayward returned the same afternoon with the teeth. He came to witness's premises about a week after, and an alteration was made to the left side of the set. On a subsequent date the plaintiff said to him, "The fact of the matter is I have been out of work for eighteen weeks, and I really ought not to have had the teeth. I cannot afford them." Witness replied that he could not do anything. Plaintiff afterwards made a complaint that the teeth did not fit, and witness told him he was very disagreeable, but promised to make a fresh impression. The second set was ready by January of the following year, and when fitted with them Hayward said, "This is something like. It is much better for me to tell you how pleased I am than to grumble." After this set had been altered the plaintiff came to him, and said, "I have taken a little bit off the left side where the tooth hurt me," and he replied that he ought not to have done so. However, he polished the part the plaintiff had altered, and later, when the latter said the teeth still did not fit, he put on two gold clasps to keep them in position. After that he refused to have anything more to do with them.

Cross examined—He was a dental mechanic, but was not registered under any Act.

Mr. Fisher—Why are you not registered? Are you not qualified?—I am as much qualified as anybody in Oxford.

Why are you not registered?—I was laid up with scarlet fever at the time I was going in for it, and when I was well it was too late. I have my indentures here if you wish to see them. The set of teeth looked splendidly with the plaintiff's natural teeth, and there was no dentist in Oxford could have got them to look like that. The plaintiff had a very irregular mouth. He made a second set because the man was so disagreeable. He obtained the teeth composing the set from the American Dental Manufacturing Company.

His Honour said he should like the evidence of the plaintiff's master to show when he was in regular work.

Herbert Beck, foreman, in the employ of Mr. Lillingston, of Cornmarket, said plaintiff had been in his employ from October up to the present time. Previous to that he had had occasional employment from that firm.

His Honour said this was a case in which there was a painful conflict of evidence and hard-swearing. The conclusion he had come to was that the teeth were a misfit; he had no doubt of that, and therefore there must be judgment for the plaintiff on the ground of breach of warranty.

Mr. Fisher asked that a fee of half a guinea be given to Mr. Franks for his attendance, and this was allowed.

## DENTISTS AND BOARD OF GUARDIANS.

The Committee appointed by the Chesterfield Board of Guardians recommended the appointment of Mr. Thomas Furness, as dentist for the Industrial Schools, at a salary at the rate of £15 per annum.

Mr. Glossop asked if the Industrial Schools Committee had passed a resolution of thanks to Mr. Smith, who had gratuitously done a certain amount of work at the Industrial Schools for the children ?

The Clerk : No, sir.

Mr. Glossop : I think, having elected another person to do the work which Mr. Smith was so kind to do for over twelve months, we should scarcely pass over services thus rendered without marking in some way or other our appreciation. I have great pleasure in proposing that the best thanks of the Board be given to Mr. Smith for the services rendered to the Board and to the children at the Schools.

Mr. Parker : Was Mr. Smith paid anything ?

The Clerk : No.

Mr. Parker : Then I think he ought to have something more substantial than thanks if he did the work a year for nothing.

Mr. Robinson seconded the motion, which was unanimously agreed to.

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## YELLOW PHOSPHORUS IN THE MATCH TRADE.

Mr. Steadman asked the Home Secretary whether his attention had been called to the statement by Mr. Talbot, medical officer of health for Bow—viz., that he had visited the works of Bryant and May and was of opinion that unless the use of yellow phosphorous was prohibited these cases would continually occur. Under these circumstances would he bring forward an amendment to the Factory Acts having for its object the prohibition of the use of yellow phosphorus in the manufacture of matches, and would he prosecute either Bryant and May or their medical officer in consequence of the death of one of their workmen, Cornelius Lean.

Sir M. White Ridley, in reply, said that he had been informed by the District Board of Works that the medical officer had made a report to this effect, and he (the Home Secretary) had asked for a copy of the report ; without seeing that he could not, of course, judge of the value of his opinion. The whole subject of the use of yellow phosphorous was being thoroughly considered, and active enquiries were being carried out in all directions. As far as the case of Lean was concerned he was informed that there were no grounds for instituting a prosecution for manslaughter. Messrs. Bryant and May and their medical man failed to notify the case, but there was no ground for thinking that their failure to do so was the cause of Lean's death.

## DEATHS UNDER CHLOROFORM.

A case of death under chloroform occurred recently at the General Hospital, Birmingham, and was subsequently the subject of an inquiry by the coroner for the city. The patient was a child, aged ten years, the operation being for an affection of the nose and throat. Dr. Sidney Haynes in his evidence stated that he had examined the child previously and had found no contra-indication to the use of chloroform. He had administered it in about 6000 cases, and this was the first death which had happened under his care. The coroner (Mr. Bradley) in addressing the jury said that according to a medical paper he had before him there appeared during the last few years to have been an alarming increase in the number of deaths taking place whilst patients were under anæsthetics. In 1887 the number of deaths was 16, whilst in 1897 they reached 96. The jury returned a verdict to the effect that the deceased died whilst under an anæsthetic which was properly administered. At the same time they thought that in such cases parents should be informed than an anæsthetic was proposed to be used and their consent in writing should be obtained. The question was considered by the medical committee of the hospital subsequently. The number of deaths occurring in the hospital was stated to have been in 1892, 1 ; in 1893, 2 ; in 1894, 2 ; in 1895, 2 ; in 1896, none , in 1898, 2—in the first three months of the year. Obviously the number of operations in which anæsthetics are administered should be considered in any statistics of this kind. Letters have been written to the daily press upon the subject by medical men, a form of discussion to be deprecated and one calculated to raise undue alarm in the public mind. The medical committee have taken the wisest course in appointing a sub-committee to enquire into the whole subject of purity of the anæsthetic used, the dosage, and the conditions generally affecting the issue.—*Lancet.*

An elderly woman died recently at the Melbourne Hospital whilst chloroform was being administered. At the inquest the pathologist to the hospital stated that in his opinion the system of giving anæsthetics at the hospital was wrong and that the students were not properly taught. The cause of death was partly asphyxia and partly disease of the heart. Some apparently conflicting opinions were given by the surgeon who was about to operate and the anæsthetist to the hospital as to whether an anæsthetic should have been administered supposing the condition of the heart could have been ascertained during life. The anæsthetist said that the students did not avail themselves of his instruction because it was not compulsory.

An inquest was held at Sydney on April 18th concerning the death of a woman, aged thirty-eight years, who died whilst under the influence of chloroform administered for a dental operation. She had appeared to be perfectly healthy. Only a small amount of chloroform had been administered when a sudden spasm occurred and the pulse stopped.

## ACTION FOR MALPRAXIS.

At Barnsley County Court, on May 19, Thomas Hirst, miner, sued Arthur Oglesby, chemist, druggist, and surgeon-dentist, to recover £10, as damages for loss sustained through the alleged unskilful extraction of a tooth on January 28 last. Plaintiff's case was that he had a tooth drawn by defendant's assistant, Mr. McKenzie, L.D.S. Edin., who in extracting the tooth broke the jaw, leaving a piece of bone hanging from it. He called McKenzie's attention to this at the time, and was told it would be all right in a day or two. It became very bad the next day. Mr. Pearce, surgeon, took away the piece of bone, and an abscess followed, so that plaintiff was unable to work for seventeen days. Mr. Pearce proved that he removed the piece of jawbone (alveolus) next day. The defence was that the plaintiff did not call Mr. McKenzie's attention to the matter at the time nor subsequently; that the bone was not fractured, but the alveolus, which was fractured whenever a tooth was extracted, and was usually absorbed by the tissues, but sometimes worked itself out. Dr. Sadler said what had occurred in this case might occur in the most skilfully-conducted operation. It would be impossible twenty-four hours afterwards to say whether the alveolus had been out at the time of extraction or whether it had worked itself out in the interval. Verdict for defendant, with costs.

# Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester during the month of MAY, 1898.

| | |
|---|---|
| Number of Patients attended . | 743 |
| Number of Extractions . . | 382 |
| Number of Extractions under Anæsthetics . | 204 |
| Gold Stoppings . . . | 69 |
| Other Stoppings . . . | 209 |
| Miscellaneous advice, temporary fillings, scalings, dressings, &c. . . | 171 |
| Gold and Porcelain Crowns . . | 30 |
| Inlays . . . | |
| Total . . . | 1808 |

W H. JONES, L.D.S.Eng., *House Dental Surgeon.*

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## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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# THEORIES.*

By John P. Headridge, B.Sc., Lond., L.D.S., Eng., D.D.S.

It is not any easy matter to find a subject for a paper before a Dental Society; the journals are full of papers, and extracts of papers, diluted with notices of dinners, and meetings, and smokers. In glancing casually through the different journals month by month, I have been struck by the number of statements which are put forward as facts, but which, on further consideration, appear to consist really of theoretical deductions from a small basis of fact, or else really nothing but pure hypothesis.

Perhaps I can make clear what I mean by recalling to your minds that it was once boldly stated as a fact that red vulcanized rubber caused ulceration of the gums, and salivation, and that this trouble was due to the mercury contained in pigment of the rubber. This statement was, of course, exploded long ago.

The facts were that ulceration occurred under several red dentures, and there was some salivation. The colouring matter in the rubber was vermillion. The theory propounded to explain these facts said that the whole trouble was due to the mercury pigment. The theory, of course, was perfectly false, and the ulceration was proved to be only due to dentures which did not fit properly, and not due to mercury at all. The whole of this looks somewhat absurd to us now, but I think if we searched dental literature carefully we may still find statements which pass muster as facts, but which contain, like the above, a small basis of fact with a certain amount of doubtful or even false theory tacked on to them.

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* Communicated to the Manchester Odontological Society.

I shall endeavour to bring a few of these theories under your consideration.

Now if we take the eruption of the teeth we find various theories, but until Mr. Constant pointed out the blood pressure as a factor to be considered, we had not even a decent working hypothesis to explain the eruption of the teeth. I think you must admit that it was of no particular benefit to the profession that such theories as the bone current theory, the contraction of the dental sac, and the bung-in-the-barrel theory should ever have been allowed to obtain prominence in dental literature.

In connection with caries, we have had at different times several theories propounded, but these have gradually been set on one side, and we have generally accepted the theory that bacteria cause the destruction of the dentine. This theory seems to fit in with practically all the facts so far observed. Accepting this theory that bacteria are the cause of caries, and that these bacteria gain access to the dentine wherever the enamel is faulty, or has been removed, and that enamel is destroyed by the acid fermentation of food, we may pass on to the consideration of theories in connection with the prevention of decay.

We know that where the gum is swollen and inflamed caries frequently occurs ; tacked on to this we have the statement that the mucous membrane when irritated throws out a secretion capable of injuring susceptible teeth. Surely there is no necessity to assume that any secretion thrown out by the gum is of itself harmful to the teeth. The swollen edge of the gum is quite sufficient to hold scraps of food, especially carbohydrates in contact with the teeth, and with the assistance of saliva and bacteria, lactic acid is formed. Further, if any secretion is thrown out by an inflamed gum, there is every probability of it being serum, which might supply the small amount of proteid matter necessary for the life of lactic acid bacteria, or the alkaline serum in excess might neutralize the lactic acid. If the latter were so, the secretion from the gum would rather prevent decay than be harmful to the teeth.

We now come to the means taken for preventing decay, and here one might say a few words in connection with the six year molar question. or more broadly, the extraction of four molars or four bicuspids as a means of preventing decay.

Let us take for example a child about 14 years of age, in whose mouth decay has run riot.

Decay may have progressed to a greater extent on the six year molars than on any of the other teeth.

The usual advice is extract the six year molars and fill the other teeth. Suppose the operations are performed satisfactorily ; when the child is seen in the course of the next year or so, the remark will frequently be that the extraction of the teeth has been of great value in allowing the teeth to separate, and so preventing the recurrence of decay round the fillings which have been put in.

I am not cavilling with the operation, but the point which I should like to question is the theory that the separation of the teeth has been the principal factor in preventing the recurrence of decay. Before the operation, the six year molars had been in use about eight years, and the other teeth down to two years for the twelve years' molars, that is to say lactic acid and bacteria have had the time (two to eight years) to find out the most faulty spots on the teeth and there set up caries. After the extraction of the six year molars, we may say that the teeth have been under the influence of bacteria and lactic acid for say an average of four years, consequently, if they are only properly filled, there ought to be very little recurrence of decay any time under four years with or without the questionable advantage of slight separation of the anterior teeth.

From these considerations it seems that one is quite justified in doubting if we are right in the assumption that the separation of the front teeth, after extraction of the six year molars, is of the importance which has been ascribed to it in the prevention of decay. Of course, I have not been considering the other reasons which might make it advisable to extract, such as removing a tooth which is very likely to be a source of future trouble, or the advantage of giving plenty of room for the eruption of the wisdom teeth.

I have only used this as an example to show how ready we are to accept a theory which, at first sight, seems plausible, and thus ignoring other explanations which may be equally probable.

It is generally admitted that it is difficult to form a water-tight plug out of the mouth with amalgam, or cohesive gold, consequently, it must be much more so in the mouth ; also that non-cohesive gold fillings are often removed when they seem saturated with the fluids of the mouth, yet there has been no decay in the cavity. In drilling out old white cement fillings, one is generally conscious that they are saturated with offensive organic matter. We assume that bacteria can gain access to the dentine through any crack which is permeable to water, yet these faulty fillings prevent decay for a number of years. White cement is credited with preventing decay better than any other filling, but it surely must be porous to bacteria to a certain extent, if an old filling contains organic matter.

No one seems to have been tempted to offer theoretical explanations for these considerations.

Tin and gold in intimate combination is a very favourite filling with many operators. The softness of this material, no doubt, makes it work easier than soft gold, and that would account for many operators preferring it. Some change takes place in the filling in the mouth. Its admirers put forward the hypothesis that the tin oxidises, and consequently the filling must expand when the particular black change occurs. This assumption is very probably groundless. Stannic oxide is not black, neither is the sulphide. If the tin were converted into either of these salts, the filling would no longer be coherent, for both sulphide and oxide of tin are fine powders.

Still the belief that the virtues of this filling are due to expansion seems to have very wide credence, although as far as I can gather this hypothesis is based on no experimental data.

In connection with gold filling there are two little bits of theoretical arguing ; one is that during a filling one ought to only use pluggers all having the same pitch of serrations, so that the depressions caused by the plugger in one piece of gold should be exactly filled up by the next piece being forced into them. That is all very well, but to assume that this could not be so well done by a plugger with either larger or smaller serrations is somewhat absurd. Of similarly doubtful value is the assumption that using a burnisher on a cohesive gold filling will pull the filling away from the walls at one point while burnishing it down at another.

Passing on to amalgams, one may mention the spheroidal tendency theory, which seems to have been entirely shelved by Dr. Black's researches.

Talking about amalgams, one is certain to come on copper amalgam before long.

Three or four years ago the extent of our knowledge was that copper amalgam preserved teeth, and in many cases wore out in time. Some said copper preserved teeth well, and others denied that statement.

Its admirers claimed that the virtues of copper depended on the salts of copper which passed into the dentine and arrested decay, and also that nearly exposed pulps tolerated copper better than any other metal filling.

I am afraid the action of the copper salts is, to a certain extent, hypothetical. This point seems to rest at present only on the fact that the dentine is stained, more or less deeply, and on the stain on the other teeth. This latter seems to be more of a deposit than an actual stain, for it wears off after the copper filling has been removed.

I do not think there is any definite analysis to prove that there is copper in the deeply stained dentine.

One would expect that a hypothesis, which is so widely believed, would be better supported by facts.

As regards the question of the pulp tolerating copper better than any other metal filling, this must be considered as pure hypothesis. It is impossible to either prove or disprove it. A statement like this is decidedly harmful; it becomes accepted as fact, though not based upon any conclusive arguments. It is handed on from one to another, rarely questioned, but when put into actual practice leads frequently to disastrous results.

The one solid fact we know about copper is that according to Dr. Black's experiments copper does not contract; possibly we may find that this is its only virtue.

Theoretically, one might be inclined to believe that an accidentally exposed pulp, treated by capping, ought to recover, if not too much injured. Practically, there is room for serious doubt as to whether any injured pulp ever does recover.

We have many observations on different methods of capping pulps, but one generally finds that these observations have extended from a year to eighteen months, and, of course, during that time the accounts are glowing.

Very many pulps (I certainly do not say all) nearly exposed will tolerate a filling of oxyphosphate pure and simple, care being taken not to exert pressure on the pulp in the act of filling.

These teeth remain perfectly comfortable for a year or so, even up to five years, and then without any apparent cause inflammation may occur, which results on death of the pulp.

This is the description of the effects one does not get described by the supporters of the different methods of capping exposed pulps. What one usually finds is a long list of successes observed only for a few months to a year, and from this list is drawn the deduction that the particular method of capping is a success.

Another method of treating an exposed pulp is by the application of arsenic. I think it is generally believed that a chronically inflamed pulp is difficult to destroy with arsenic.

One is even advised to allay the inflammation by application of sedatives before applying the poison. The theoretical explanation of the difficulty is that the dilated blood vessels will carry off the poison without it having its customary effect on the pulp as a whole. This seems rather a wild hypothesis, yet I believe it does obtain a certain amount of belief. It seems entirely unnecessary if we consider that there are three factors, which will, no doubt, account for all the difficulties in destroying inflamed pulps. If the pulp is already suppurating, there will be a layer of dead pus cells between the pulp and the poison ; in many cases the pulp may have retracted, so that the poison does not come into direct contact with it, or calcification may have occurred at the exposed point, so that although the pulp bleeds the poison comes only into contact with a very small portion of the soft tissue. Passing by the treatment of dead pulp, we come to root fillings, and here I cannot find much that is theoretical, except the prevalent belief in antiseptic dressings.

There seems to be a certain amount of theory in this method of procedure, when one considers the exceedingly minute apical foramen of a root, and expects to apply a medicament to the tissues above by means of that very fine canal.

The many different methods of filling root canals, which cross one's mind when only giving a casual thought to this branch of dentistry, probably serve only to indicate the difficulties which have to be overcome in the actual operation. In surgery, the more difficult the operation the greater is the number of methods of procedure.

Perhaps no one will doubt that the actual amputation of the apex of a root does in many cases cure a chronic fistula which has been unaffected by other methods of treatment. The theoretical explanation of this fact seems open to serious question.

We are told that the fistula is due to the roughened end of the root denuded of its periosteum acting as a constant irritant.

One cannot prove that this is not so, but surely dead matter at the apex, or a protruding root filling, are quite sufficient reason for all chronic fistulæ.

Also if the roughened denuded cementum keeps up a chronic suppuration, why does the suppuration cease when the soft tissues have to heal up against comparatively rough bare dentine?

It is far too easy a matter to put forward a hypothesis, or theory, but is quite another matter to stamp it as false after it has once been started.

A hypothesis about a group of facts is only of value when it co-ordinates and explains all the facts, and the hypothesis becomes a theory when it is found that newly discovered facts fit in with the old explanations.

I am sure if all the statements in dentistry which contain anything like theory or hypothesis were closely analysed, many of them would be found to be based on very weak or entirely false grounds.

I think it is about time I brought my somewhat disjointed remarks to a close. I am conscious that I have hardly done justice to my subject, but I hope you will agree with me this far: that we do find many theories accepted in dentistry which certainly require revising, or even branding as false, though you may not entirely agree with the examples I have brought forward.

# ALVEOLAR ABSCESS.*

By Mr. G. V. Smallwood.

Mr. President and Gentlemen,—In considering the subject of Alveolar Abscess it is well to remember that we have to deal with a condition of suppuration which in all essential features is the same as suppuration occurring in other parts of the body, but is modified by the structural peculiarities of the part in which it takes place. I will, therefore, with your permission, introduce the subject which I have chosen, with a very brief outline of the phenomena which always accompany all inflammations accompanied with suppuration.

First, then, there are the changes which take place in the blood-vessels and their contents, which may be shortly summarised as follows,—*Dilatation* of the vessels immediately followed by an *acceleration* of the flow of blood. After a time *Retardation* of the flow sets in, this goes on until a state of *Oscillation* is reached, that is, the blood ceases to flow and simply sways backwards and forwards with the pulse. Later, all movement ceases, and a condition of *stasis* is reached. The normal amount of fluid escaping from the vessels becomes much increased, and corpuscles also escape in large numbers, so that the surrounding tissues become infiltrated with cells and fluid.

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* Read before the Birmingham Dental Students' Society.

Secondly, there are the changes in the inflamed tissue—the most obvious of these is a "blurring," so that the component elements become indistinguishable, and the tissue cells become structureless masses owing to the "coagulation necrosis" which they undergo.

All suppurative inflammation and formation of abscess is associated with the presence of micro-organisms, most commonly the staphylococcus pyogenes aureus. In alveolar abscess, I believe that the diplococcus of pneumonia is also always present. These organisms collect in those parts most suitable for their growth, and begin to multiply, giving off in the process some toxic irritant which acts on the surrounding tissues causing them to undergo coagulation necrosis, so that patches of dead tissue are found. Leucocytes now appear at the borders of the dead tissue, and as their numbers increase, a few begin to cross it, and these are followed by others until the cocci are surrounded. Some of the cocci pass out and collect in other spots, always. however, becoming eventually surrounded by leucocytes ; as soon as the leucocytes have gained the upper hand, vessels appear and granulation tissue is formed, thus a cavity is made filled with leucocytes, liquefied dead tissue, etc., this is pus, and the abscess is now complete. Having briefly outlined the processes attending the formation of abscesses in general, I will now turn to the consideration of the special variety of alveolar abscess.

Alveolar abscess may be described as Acute and Chronic, though the difference between the two is only one of degree. In acute cases the process is rapid and often accompanied by sharp constitutional disturbance; in chronic cases, on the other hand, the symptoms are less severe, but tend to persist or to recur at short intervals.

In the large majority of cases alveolar abscess is due to irritation from the root of a pulpless tooth, that is a tooth in which the pulp has undergone degeneration, and is physiologically dead, and is acting as a foreign body on the surrounding tissues. So much is this the case that it is usual to regard an abscessed tooth as one with a dead pulp. But abscesses in connection with teeth the pulps of which are healthy or subject to but slight disease are not uncommon, especially according to some authorities, in gouty subjects. Other causes may be mentioned, such as a ligature left upon a tooth and working up beneath the gum, the bristle of a tooth brush becoming lodged in a similar situation, etc. We must also look for predisposing causes, for a large number of so-called dead teeth exist in mouths where alveolar abscess is unknown. Any condition which tends to lower the vitality of the part or of the body generally, from a slight catarrh to tuberculosis and syphilis may act as a predisposing cause.

Although pericementitis usually precedes the formation of an abscess, and so may be classed as a cause of the disease, I do not intend to discuss that condition to-night, it is a subject large enough and a disease distinct enough, to merit a long discussion of its own.

The primary seat of an alveolar abscess is usually in the pericementum near the apex of the root of the tooth involved. From this central focus the suppuration spreads, the cells of the inflammatory wall forming the boundaries of the abscess are liquefied, and the abscess cavity enlarges. When the bone is reached, it also is attacked, and eventually absorption through pressure of the inflammation is effected, and a complete perforation having been formed, the pus escapes into the soft tissues—the outer wall of the alveolus is most usually perforated, and the abscess then makes its way to the surface of the gum, pointing at a level of the apex of the root of the affected tooth. This simple process is very often the extent of the mischief. But unfortunately not always so. For instance, it may happen that that spot corresponding to the apex of the root is not situated on the gum, but below the reflection of the mucous membrane from the gum to the cheek. Obvious causes of this are a peculiarly long root or the abnormally superficial reflection of the bucco-pharyngeal aponeurosis so that an abscess occurring under those conditions would most probably point on the face. Again, it very frequently happens that considerable absorption of bone occurs around the roots of upper teeth so that pus makes its way into the antrum, the same condition would of course even more readily occur in those cases in which the apices of the roots project directly into the antrum. Again, in upper incisors the same process of absorption may lead to the formation of a sinus into the nose. Or as is frequently seen in the case of upper laterals the pus may burrow into the palate. In the lower jaw the roots of the teeth may extend very nearly into or sometimes actually project into the inferior dental canal, and the pus may then travel along the canal either forwards to the mental foramen or backwards to the inferior dental foramen. Again, the roots of the teeth may be prolonged below the insertion of the mylo-hyoid muscle when pus would be likely to collect in the sub-maxillary triangle. Or, as sometimes happens, the roots of the teeth may be inclined towards the lingual aspect of the jaw, instead of outwards as usual, so that the tendency for pus to travel into the floor of the mouth rather than on to the gum would be present. But besides the anatomical peculiarities above referred to there is no doubt that predisposing causes may exert a large amount of influence in the production of those severer forms of alveolar abscess; thus we notice that strumous children are frequently the subjects for their occurrence, and other unhealthy conditions may act in the same way. I think that heredity may also be included in those cases, the structural peculiarities may be the inherited defect.

The situation at which the abscess points when the pus has travelled into the soft tissues surrounding the jaws will naturally in some cases be remote from the original seat of the disease, but a knowledge of the anatomy of the part will almost always help us to recognise the connection between the two. For instance, if an abscess from a lower tooth point at the hyoid bone we can readily understand that it has travelled in the folds of the cervical fascia, similarly it may travel as far the clavicle—the most common situation at which pointing may occur on the face are the angle of the jaw, or at the chin, and almost any point between these two, in cases of lower teeth. And the canine fossa and the depression below the inner angle of the eye in cases of upper teeth. I remember a case at the hospital which will illustrate some of the points very well. The patient, a boy of 12 years of age, had a large abscess in connection with a lower first molar, which was on the point of breaking at the angle of the jaw. The tooth was removed, and free incisions were made into the abscess and a large quantity of pus was withdrawn, the cheek was then carefully supported with strapping. Next day he was again seen, and as it was found that a good deal of pus was collected at the bottom of the cavity an incision was made through the cheek and the disease was rapidly cured. About six months later the boy came to the hospital with an almost exactly similar condition on the opposite side of the mouth. This patient was a good example of the so-called strumous type, the roots of the teeth were very long, and in addition the reflection of the mucous membrane was extra-ordinarily superficial, the teeth appearing to stand out of the floor of the mouth.

No doubt many abscesses point upon the cheek, when this could have been prevented, the dangerous practice of applying poultices to the cheek being responsible.

Before passing to the consideration of Chronic Abscess, I will just mention some of the rarer forms of the acute form. I have already mentioned the presence of foreign bodies as a possible cause of the disease, but others of more obscure origin occur from time to time, such as two cases of acute abscess following the application of Baldock's paste for the destruction of exposed pulps reported in the British Dental Association Journal some time ago. Those cases have been explained as follows: the pulps were more or less infiltrated with bacteria, but the ptomaines were carried off by serum exuding from the vessels; when the cavity in the tooth was closed by the dressings this exit was cut off, the consequence being that excess of fluid passed through the apical foramen.

Coming now to the consideration of chronic abscess, we find that some differences exist between this condition and the one already described ; and though as a rule, the symptoms are not so severe, yet they have a tendency to persist, and if they subside they are prone to reappear. Predisposing causes have much influence in the causation of chronic abscess, the rheumatic and gouty diathesis may be mentioned as examples. And we may find that constitutional treatment is necessary before a cure will result.

Buried teeth, that is teeth which have not erupted, are frequent causes, and in some cases a diagnosis may be very difficult owing to the peculiar situation of the tooth in question, or the length of the sinus, or the remote spot at which it discharges. A few cases will serve to illustrate my meaning better than any amount of description.

In one the patient complained of deepseated pain at the angle of the jaw of two years duration, an abscess formed and discharged for some time. On a probe being passed into the tract it was felt to impinge against a hard substance which at an exploratory operation proved to be a tooth developed upside down. In another instance a patient complained of swelling in the nares accompanied by constant discharge, the swelling was ultimately recognised as an inflammation round a sinus which led to a canine tooth developed in the floor of the nose. In another case a chronic discharge at the alveolar ridge of the maxilla was noticed unattended by pain, caries of the bone was discovered and at the operation for removal of the diseased tissue, the antrum was opened when a canine tooth was found in that cavity.

In the simplest cases of chronic abscess we generally find a small sinus opening on the gum which constantly discharges a small amount of fluid, but ordinarily gives rise to little or no discomfort; or an unhealthy root may be affected and the discharge escapes through the canal. Another form of chronic abscess which is generally the result of the acute condition, is the so-called dental cyst. A cavity having formed in the usual way, sometimes appears to become lined with a pyogenic membrane resembling that of a cyst, and fluid is constantly discharged even after removal of the offending tooth or teeth, the cavity is of considerable size and several teeth may be implicated.

Other causes of chronic alveolar abscess may be found in the projection of a root filling beyond the apex of the root. The mechanical cause of a malarticulation may also be mentioned, for instance, when a metal filling has not been properly trimmed down, and is thus unusually impinged upon.

The complications which may arise from alveolar abscess are numerous. Perhaps osteitis and osteomyelitis are among the commonest, and they must, I think, very frequently occur to a slight extent, even when they are not recognised. But in bad cases caries of the bone, or necrosis may supervene and lead to extensive loss of bone tissue. Cases are recorded in which half and even the whole of the maxilla has been so lost. As would be expected these complications more often occur in syphilitic, tubercular and scrofulous subjects. In more severe cases pyœmia has occurred with a fatal result.

I have already mentioned that an abscess may be caught in a process of the cervical fascia, and serious complications may arise from this, for instance Garretson reports a case in which the pus collected about the hyoid bone and from thence passed up over the face, it also pressed directly upon the floor of the mouth producing a unilateral glossitis from the mechanical effects of which upon the organs of respiration the patient died.

In abscesses in connection with upper teeth which have pointed upon the face, Steno's duct may become involved, and a salivary fistula may result. Troublesome disease of the antrum may be set up. The inferior dental nerve may become paralysed from pressure of an abscess occurring in the lower jaw. We see then that alveolar abscess may become a very serious disease indeed, and it has in a considerable number of cases caused the death of the patient.!

*Diagnosis.* Diagnosis of simple cases presents no difficulty, and as a rule they are easily recognised. But in more complicated ones the diagnosis is not always easy. One of the most common difficulties arises in stumous and tubercular patients, especially children, when an enlarged gland close to or actually adherent to the jaw may be present. If the gland is suppurating, fluctuation is of course noticed in the swelling, and in addition carious teeth are very often present. Again, the abscess may be so tense that it is difficult to detect fluctuation.

It is not easy to lay down rules for effecting a differential diagnosis in such cases, but there will generally be other enlarged glands in the neck, and generally, though not always, the gland is freely moveable.

An abscess having a sinus into the nose may be mistaken for a catarrhal condition of that cavity, the mouth of the sinus is generally situated upon a papilla of granulation tissue and this further tends to mask the true condition. Several cases of obstinate discharge from the nose which have resisted all local treatment, and have eventually been discovered to be chronic alveolar abscesses, have been reported. A careful examination of the front teeth will of course aid the diagnosis in these cases.

From necrosis of the jaw alveolar abscess may be distinguished by the sinus being generally single, more or less straight instead of double or triple, and following the complicated course so common in necrosis. And the passage of a probe along the sinus will usually clear up the diagnosis. Yet many cases have been recorded in which a wrong diagnosis has been made by eminent surgeons.

Perhaps the best aid in the diagnosis of abscesses occurring in connection with the teeth is a thorough knowledge of the anatomy and relations of the teeth and of the jaws. With this and a careful examination of the mouth, by electric light if necessary, alveolar abscess even in its most complicated forms should be always recognised when present.

*Treatment.* I now come to the important subject of treatment of this disease. There is one method, which I venture to say is too often practised, but which will in nearly all cases effect a speedy cure, and that is extraction of the offending tooth. But in a great many cases conservative treatment can be adopted. Especially is this the case when the disease has run a simple course, and it should be borne in mind that the abscess is not caused by the tooth but by its contents.

The first thing to do is to make free incisions into the inflamed area, if pus has already formed an exit is provided for it, and if not the inflammation is relieved and the formation of pus is prevented. In a day or two all inflammatory symptoms will have subsided and the tooth may be operated upon and the canals thoroughly cleared and sterilised. For this purpose sodium dioxide, pyrozone, hydrogen peroxide and phenol sodique are all strongly recommended. The drug selected should be forcibly pumped through the abscess tract until it comes away clear, or smaller quantities may be gently drawn through the fistulous opening by means of Hunter's syringe, the edges of the rubber cup are moistened and pressed flat against the gum, when pressure is removed from the centre of the cup a suction is created. The canals are now filled with loose cotton dressings soaked in some antiseptic fluid, and the crown cavity plugged and the case dismissed, in a week or two the abscess cavity should be healed, and the roots can then be permanently filled.

If pus has already formed and is in the soft tissues of the cheek, an incision should be made in the sulcus between the gum and the cheek, so as to cut across the tract of the abscess. Care must be taken to direct the bistoury inwards and not outwards towards the cheek for fear of wounding the facial artery, and the position of Steno's duct must be remembered when performing the operation in connection with upper teeth. If fluctuation upon the face is evident, indicating that an external opening is unavoidable, an incision should be made at once as the resulting disfigurement will then be small or nil.

Treatment of chronic abscess requires a few words. If there is no fistula on to the gum, the roots having been cleared the abscess cavity should be thoroughly syringed out, and if as may happen in lower teeth this procedure does not clear out the contents of the abscess they should be withdrawn by means of a syringe. If a fistulous opening is present, syringing as in the case of the acute condition should be carried out. If by the end of a week the fistula has not healed, the abscess cavity may be cleaned out through an incision in the gums, or if the cementum is denuded or roughened amputation of the apex may be performed. An incision is made through the soft tissues to the bone, the bleeding having been stopped the perforation in the bone is enlarged by means of a rose bur in the dental engine, and the apex of the tooth exposed, the diseased portion is now removed with a fine and very sharp fissure bur, and any rough edges smoothed over with a sharp scaler or other suitable instrument. The cavity is then swabbed out with phenol and if necessary the wound is closed with a stitch.

I must just mention the heroic treatment of removing the tooth, cutting away the diseased portion and replanting it, I think this method has little to recommend it, and I am convinced that its success is purely a matter of chance, and in many instances the low vitality of the parts precludes the possibility of success.

In conclusion, gentlemen, I must thank Mr. Whittles most heartily for his kindness in lending me so many valuable slides and for exhibiting them for me, and I only regret that my sketch of the subject is so little worthy of the trouble he has taken.

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A MEETING of the Executive Committee for the institution of a Jenner Memorial was recently held at St. George's Hospital, when the President, Lord Lister, was able to announce the gratifying news that £10,000 had been subscribed, Lord Iveagh being responsible for the noble donation of £5000.

# British Journal of Dental Science.

LONDON, JULY 15, 1898.

## ORIGINAL COMMUNICATIONS.

The complaint has sometimes been made by subscribers to dental journals that the original matter contained therein is small in quantity and deficient in quality, that it often consists in part of the maiden efforts of students, or of the vapourings of those with some special hobby which does not appeal to the general bulk of readers. Of the former type of article those critics sometimes aver that the word "original" is a misnomer, as the paper read before some Students' Society is generally compiled from the well-known text books. With regard to the second class of paper the objection is raised that it is perhaps theoretical, unpracticable, or uninteresting.

In reply to these critics we admit at the outset that what they say is often perfectly true. At the same time we must remind them that the subject of dentistry—unlike that of medicine—is a very limited one. Considering the narrow scope of the subject we are often amazed at the large number of magazines, British and Foreign, devoted to the subject and the large number of articles which make their appearance monthly, fortnightly, or even weekly, dealing with the many points of interest in oral surgery and mechanism. With regard to students' papers, we must not forget that we all were students once, and we hope that we still are considered worthy of the name. We must also remember that it is a great incentive to a student to take the trouble to compile a paper, when he feels that what he has written will appear in the journal read by those among whom he hopes shortly to rank. It puts him on his mettle, it helps to train his mind and his pen, and if the article be neither first-rate in style or in matter, we must rank as indulgent critics, remembering the Roman proverb "respect the youth," for he will some day be a man. As for the hobby-monger, although he may bore us, yet if we take the trouble we can generally find there is a grain of truth at the bottom of the well which we may be all the better for having acquired.

We should like to point out to all such friendly critics that it is in their power to improve the evil of which they are sometimes prone to complain. It is by they themselves coming to our aid and sending us original communications. We shall be only too glad to receive and publish them, nay more, if suitable we shall be glad to pay for them. Can we say more? It is not given to everyone to have the ability, time, or the training to engage in original research and investigation. Bread must be earned, and after the daily toil is ended few have the strength or the enthusiasm to settle down to brain work connected with their craft. But it is the willing horse which does the most work, and those who have enriched our profession with fresh scientific facts, have not proved themselves incompetent in the field of everyday practice. There is very much still to be learnt by those willing to enter into the work of original research. The province of bacteriology is fallow ground waiting to be tilled, the ultimate causation of dental caries amongst civilized peoples is yet an unknown factor, and consequently the means of its prevention is a sealed book. The ideal filling material has yet to be discovered, and as regards the filling materials at our disposal, there is not one which is not perhaps capable of improvement. Amalgams alone are sufficient to occupy a lifetime, the properties of the different metals entering into their composition, the best proportions for admixture, the proper mode of melting and annealing, and why they change in shape and discolour themselves and the teeth. Oxyphosphates are unreliable, and gutta perchas are full of variations. We might enumerate many more subjects, such as Pyorrhœa Alveolaris, which call for investigation, but we have said enough to show that there is work for all who wish to help the cause of science in our specialty. But apart from such deeply scientific work, we should like to impress upon our readers that facts of the greatest interest may be gathered from our every day work if we compile them systematically, and work them out carefully. And now after pointing out to our readers how they may be of use to dental literature and the dental profession, we hope they may be induced to take the hint.

DENTIST AND BOARD OF GUARDIANS.—Mr. A. Hatton was appointed dental surgeon at the Salford Union Workhouse for twelve months at a salary of £15. It will be the duty of Mr. Hatton to make a quarterly inspection of the teeth of the children in the Workhouse, present a report thereon, and carry out such dental operations as may be necessary. We do not know the amount of work there is to be done, but the honorarium does not strike us as being an extravagant one for presumably a large Union.

A HORSE-DENTIST.—The *World of Sport* devotes an article to Mr. Joseph Marsh, whose services in equine dentistry seem to be in much request. In the days when those who had the care of animals were all more or less brutally ignorant, horses used to be physicked and drenched for imaginary complaints of the liver, when with a little careful examination the evil would be found to be the result of a hollow tooth, or from the teeth have their edges worn unevenly until they perform the office of saws on the poor animal's tongue and cheeks. An instance has been known of a carriage horse six years old, who was wasting away from some obscure disease—so the coachman thought—but who, upon having his mouth examined, was found to have six hollow teeth in the top jaw. And with the race-horse it is found that his baby-teeth want a lot of looking after, with a view to improve his condition as a valuable item of property. Teething troubles are frequently the cause of startling alteration in form, and just as a man with the toothache could hardly be expected to shine in any occupation, so would it be folly to trust to a race-horse doing his best when his teeth are defective.

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Cleft Palate.—Dr. D. Brandt in a work recently published on congenital and other defects of the palate draws attention to the necessity for the co-operation of the surgeon and the dentist, and discusses the question of the relative values of operative and mechanical treatment of congenital defects of the soft palate. The author describes the different methods of closing the fissure by mechanical means, as by the soft rubber velum employed by Kingsley, and by the hard rubber hollow Suersen obturator, which the author considers was the first obturator constructed on sound physiological principles. A device of the author's is also described in which the fissure is filled by means of a cleverly devised pneumatic apparatus, inflated through a tube carried along the plate covering the hard palate. If the operation is undertaken, as the author advises, in earliest infancy, he considers that the attempts to improve the speech should not be undertaken before the sixth year. The combination of both methods—the plastic obturator for closing the fissure and the use of a mechanical operation is carried out with due regard to the future application of that apparatus.

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The Match Difficulty.—White phosphorus is no longer to be used for manufacturing matches in France. Two chemists attached to the State match manufactories appear to have succeeded in making a serviceable article without it, as matches produced by their system have been on sale during the past week or two in Paris, and seem to give satisfaction. It is hoped that the danger to the workpeople, about which there has been so much complaint, will now be avoided. The prize of £2000 offered by the Belgian Government still seems unclaimed, and we fear is likely to remain so, as the conditions imposed, namely, that the match should not contain white phosphorus, and should strike on anything, even soft cloth, and at the same time should not be liable to ignition under ordinary circumstances seems impossible.

THE DENTAL HOSPITAL OF LONDON.—The annual report of this hospital which has been recently issued shows that the work connected with the building of the new hospital is progressing surely if slowly. The delay has been due to two causes—namely, the complicated arrangements necessary in the interior of the hospital itself, and the difficulties encountered in complying with the demands of the various authorities. The estimates for the new building have, we understand, been received from the builders and are now under the consideration of the trustees and the committee, so that in the near future we may hear that the work of actual building has commenced. The demand on all dental hospitals is bound to increase by rapid strides through the increased importance rightly placed by the public on the value of teeth ; in the case of the Dental Hospital of London the building at present in existence is quite unfitted to meet all the calls made upon it and the new building is an absolute necessity. It is satisfactory to find from the report that the expenses of the management are more than met by donations and annual subscriptions. Funds are, however, urgently needed for the building fund. A perusal of the list of subscribers shows strikingly the somewhat scanty support which the institution receives from the public and the liberal aid which it receives from the dental profession.

THE DENTAL SCHOOL OF PARIS.—The council of the Dental School and Dispensary of Paris, the Committee of the Paris Odontological Society, and the council of the General Association inaugurated on the evening of June 25th the new buildings of the Dental School of Paris. After the establishment had been inspected a banquet followed, Dr. Lecaudey, the honorary president of the Association, being in the chair. The following morning there was a meeting to consider the forthcoming Congress of 1900, also a clinical meeting of the Odontological Society, and the prizes and diplomas for the scholastic year 1896-1897 were distributed to the pupils of the school.

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To Remove Gold Crowns.—Dr. Dunn, of Chicago, gives the following for removing gold crowns:—"Cut an oblong hole in the crown just over the stump of the root, and with a narrow chisel wedged in between the inside of the crown and stump, the crown can be easily removed."

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Public Schools and Food.—Dr. Harry Campbell writing to the *Lancet* on the above subject remarks: "Without attempting to construct a diet table myself I would throw out the following suggestions. Breakfast should consist chiefly of porridge and milk, brown bread should be substituted for white, and tea and alcohol should be banished. Care should be taken, moreover, to give food which requires a good deal of mastication. Our children are fed for the most part on soft and pappy foods which are swallowed after little or no mastication, with the result that the teeth and jaws are not properly exercised. This is, I am convinced, one of the chief causes of the decay of the teeth so common among us."

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Large Number of Foreign Bodies in the Stomach.—In the *Journal of the American Medical Association*, Dr. A. H. Meisenbach has published the case of a man, aged twenty-two years, terming himself "the human ostrich," who had for nine years followed the "profession" of swallowing glass, metal, etc. He suffered no discomfort until the end of that period when he complained of pain in the stomach. Whilst standing, a mass of about the size of the hand could be felt in the umbilical and hypogastric regions which could be raised and which descended with an impulse. When recumbent as he turned from his back on either side the mass moved towards that side. A skiagram showed a shadow in the umbilical region. Gastrotomy was performed and 118 articles, besides about an ounce of broken glass, weighing in all 1 lb., were removed. The articles were: 27 staples, 15 screws (I in. and 1½ in.), 52 nails (2 in. and 1½ in.), 21 cartridges, 2 pocket-knife blades, and 9 inches of brass chain. The patient recovered. The retention for such a long period of this extraordinary collection of foreign bodies in the stomach without injury and even without symptoms is remarkable.

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To Remove Plaster Impressions from the Tray.—Dr. Battershell recommends the following plan: "To remove a plaster impression from the tray quickly without marring tray or breaking the impression, proceed as follows: Directly after removing the impression from the mouth, trim away all surplus plaster which will bind the impression to the tray; place a Bunsen burner upon the centre of a folded towel, and over the flame of the burner move the impression, cup down, until it pops loose. This result is effected by the generation of steam between the tray and the impression, and is accomplished in less than a minute's time. The impression falls off unbroken upon the folds of the towel."

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Dr. Black on Amalgams.—Dr. Black says "If we have control of shrinkage and expansion we can control the working property. We can make amalgams containing seventy-four parts of silver work very soft and be a long time in setting, but it would defeat us to do that. We must have our amalgam work stiff, or we cannot make good fillings."

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Setting Crowns in Gutta Percha.—It is Dr. C. T. Barker's opinion that although a little more difficult, it will be found much more satisfactory in the end if crowns are set with gutta-percha instead of cement.

# Manipulative Micellany,

It is requested that all new instruments or articles which it is wished to have described under this heading, be sent *for inspection* to the publisher not later than the 8th and 23rd of each month; they can be returned in a few days. Where, from the size or otherwise, this is impracticable a clear and minute description will be sufficient; the sole object being to give practitioners a description of everything new, on its own merits and without any intention or wish to pit one against another. All makers, vendors, and inventors, are invited, with strict impartiality, to contribute towards this end.

## POULSON'S STOPPING MATERIALS.

We have received samples of Gutta percha stopping both white and pink, and also a useful form "Gutta Percha Composition" in sticks for temporarily sealing dressings, etc., in cavities. We have also been trying the Formol Cement in many cases. This is intended to be used in the same way as Formagen, and was, we believe, the first in the field. Time has not, however, been given sufficient to pronounce upon the result of the present fashion of pulp-capping, but Formol Cement seems to answer very well as an application under a cap in cases of pulp exposure, or where a thin layer of affected dentine is to be left in the floor of a cavity.

Mr. Poulson has also a very economical little instrument for carrying floss-silk between teeth, which may prove useful for patients who have a difficulty in this matter. It shuts up like a small pencil case, and can easily be carried in the pocket.

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A Conversazione will be held under the auspices of the medical staff and the lecturers of the Dental Hospital of London at the Royal Institute Galleries, Prince's Hall, Piccadilly, on Tuesday, July 19th, 1898. The prizes in connexion with the school will be distributed by Lord Ludlow at 8.30 p.m.

# Abstracts of British & Foreign Journals.

## PHOSSY JAW.

Mr. Farmer has recently in our correspondence columns drawn attention to the state of the teeth of the "dippers." If sound teeth means freedom from "phossy jaw" it would seem that the economic question will be "Is it cheaper to give up using yellow phosphorus or continue using it and employ a dentist?" *The British Medical Journal* has the following article on the subject, but the dentist is not mentioned.

"There was considerable expression of adverse public opinion a few years ago when the painful character of the malady endured by match makers and the fact that several of the sufferers had died became generally known. The attention of the Government was directed to these circumstances, and as a consequence the Home Secretary, Mr. Matthews, drafted new rules, but as these were soon found to be insufficient, another inquiry was instituted into the manufacture of matches by yellow phosphorus. Within the last few weeks public feeling has again been aroused upon this important question. Recently a match dipper in Bryant and May's, aged 22 years, died after a lingering illness, during the course of which a swelling appeared on the right jaw which had to be lanced, the discharge being extremely offensive. Subsequently an abscess, which had to be opened, appeared in the chest; the patient had rigors, became delirious, and died. By the medical officer of the works the cause of death was certified as cellulitis. The registrar reported the circumstances to the coroner, and in due course Mr. W. E. Baxter held an enquiry at Bow. A *post-mortem* examination was made by an independent medical witness, and as extensive necrosis of the lower jaw was found, this circumstance, along with the story of the employment of the deceased and the medical opinion that death was due to exhaustion from blood-poisoning set up by necrosis of the jaw, led the jury to return the verdict that death was due to phosphorus poisoning. The case formed the subject of questions in the House of Commons by Sir Charles Dilke and Mr. Pickersgill as to whether the time had not come for prohibiting the manufacture and importation of matches requiring the employment of the more dangerous form of phosphorus. To this Sir Matthew White Ridley returned an answer alike cautious and straighforward. He admitted that the case had not been reported, either by the visiting doctor or the firm, and that there had therefore been a contravention of the 29th Section of the Act of 1895, which requires every case in which there are symptoms of necrosis of the jaw in a match maker to be reported. Promising that further inquiries would be made, the Home Secretary stated that, as no other cases of phosphorus poisoning had been notified since the Act of 1895 came into operation, the evidence did not seem to him at present sufficient to justify the unconditional prohibition of yellow phosphorus. Scarcely had these words fallen from the lips of the Home Secretary than there were published in the newspapers the particulars of the painful illness of another match dipper which had also not been reported. Doubtless there may be a difficulty at times in arriving at a proper diagnosis in these cases, but as the Act provides for such it is safer to conform to the law by notifying them. There are good grounds for the opinion that the only way to stop phosphorus poisoning in match works is absolutely to prohibit the use of yellow phosphorus. From the paragraphs which have appeared in the daily papers it might be assumed that on the Continent the use of this dangerous substance is already prohibited. We are told that in the French match factories the men and women workers revolted against the shocking conditions of labour to which they were subjected under this State monopoly, and also against the use of yellow phosphorus, that concessions were wrung from the State, and that yellow phosphorus was abolished. A correspondent who has given special attention to the subject, however, writes as follows : 'I am in a position to contradict to some extent the sweeping character of this statement. French matches, to begin with, are notoriously bad compared with English. In one of the State factories I recently saw matches being made from both forms of phosphorus. It is true that it was the minimum of the more dangerous kind of phosphorus that was used, sometimes not more than 0·5 per cent. in the composition. Still, there it was, and it had to be mixed and matches had to be dipped therein. I have visited match factories in this country, in Sweden and in Belgium, in all of which the yellow phosphorus was used, and apparently very little risk was being run owing to the excellent system of ventilation and the means employed for removing the phosphorus fumes. A strong down draught, for example, on the offside of the dipper's plate completely prevents the odour rising. This and similar methods adopted in other parts of the factory greatly minimise the risks to health of the workers." But, after all, some risk remains, and as the employment of amorphous phosphorus is unattended by risk, it would be better for all could it supplant its more dangerous rival. Dr. Henrich Haeckel, of Jena University, after considerable experience, throws in the weight of his authority in favour of the total abolition of matches made with yellow phosphorus; so, too, do the Swiss inspectors of factories. Economic considerations, however, still prevail, and so long as matches continue to be made in our own country as they are to-day, we repeat that it is a duty incumbent upon medical men to report to the Home Office all cases of necrosis of the jaw occurring in people employed in match factories. We would remind members of the medical profession that they are required by the Factory and Workshop Act, 1895, to report cases of plumbism, arsenic, phosphorus, and anthrax poisoning to the Chief Inspector of Factories. For not complying with the requirements of the law, the medical officer to Bryant and May's has been all but prosecuted. The Home Secretary has intimated that he intends to proceed against the firm, but that, recognising the difficulty of making a diagnosis in the case of the match dipper, it is not his intention to prosecute the doctor. Clearly upon all medical men there rests a very important duty in regard to the illness of workpeople engaged in the dangerous trades that have been scheduled.

## THE EDUCATION OF DENTISTS.

The *Hospital* says, growls are beginning to be heard about the curriculum for the dental diploma and the character of the examinations on the faith of which the colleges are passing men as qualified dentists. There is much reason to fear that the time now spent by many dental students in getting up the smattering of medical knowledge required of them might be far better employed in attaining that practical skill in dealing with disorders and deficiencies of the teeth, the possession of which, indeed, is the sole excuse for the existence of dentistry as a profession apart from general medicine and surgery. A well-qualified surgeon ought certainly to know about teeth just as he knows about eyes, ears, or club feet, and if, as is true enough, specialists ought to know still more, specialists can be had within the ranks of the profession. Manual skill in dealing with dealing with dental disorders is, however, another matter. Scaling, extracting, stopping, boring little holes here, there, and everywhere, and making all sorts of curious mechanical contrivances for restoring beauty and masticating power, must always remain the special work of a special set of men. This is an art which is quite distinct from medicine, surgery, and obstetrics ; it is an art so exacting as to be sufficient for a man's life-work, and no one will deny that the public, in trusting their teeth to the care of those who call themselves dentists, ought to have some security that such people are thoroughly qualified to perform these manipulations. Hence the examination and registration of dentists. The question is, does the prescribed curriculum, and do the prescribed examinations as at present conducted, tend to secure for the use of the public and the medical profession a class of men who are thoroughly competent in these more or less mechanical processes, and thoroughly skilful in dentistry pure and simple ; and do they not rather tend to turn out a set of men who, however wide may be their general (*sic*) in regard to medical and anatomical affairs, are less te be trusted for the real work they have to do than they would be had they, even at the expense of a less wide education, gone through a longer term of apprenticeship to to the actual business of their lives.

## NITROUS OXIDE ANÆSTHESIA IN DENTAL PRACTICE.

By Mr. H. Hilliard.

After enumerating the advantages of Nitrous Oxide Gas, Mr. Hilliard goes on to say : If an anæsthesia of several minutes' duration, after the removal of the face-piece, can be obtained with nitrous oxide, by whatever means, this agent will be used with increasing frequency, and that it will be only supplemeeted in those cases where an unusually prolonged narcosis is required, as, for instance, in extensive immediate torsions, regulations, and multiple extractions. Up to the present time the means adopted for prolonging the anæsthetic effect of nitrous oxide have been very imperfect, being based for the most part upon the principle of preventing the elimination of the gas, thereby obtaining merely a slightly prolonged anæsthesia ; but by preventing this elimination we must prevent or impede respiration also. Such methods, for instance, as pushing backward the lower jaw together with the tongue, thereby closing the orifice of the larynx, or by passing a sponge upon a holder backwards and downwards into the pharynx, produce very marked congestion and cyanosis, with jactitation—in fact, the signs of impending asphyxia. The patient under these circumstances is in a dangerous condition ; there is great engorgement of the venous system and right side of the heart, and should there be present any degree of valvular cardiac disease the heart muscle might be unable to cope with the extra strain thrown upon it and the administration might possibly terminate fatally. In almost every reported case of death occurring during the exhibition of nitrous oxide it has resulted from obstructed respiration and consequent asphyxia. We are always very careful, therefore, when administering the gas to patients suffering from valvular disease of the heart not only to ensure perfect freedom of respiration, but also to allow a due admixture of air or oxygen, in order that all jactitation, cyanosis, and cardiac engorgement may be avoided. There is also another grave objection to this mode of prolonging nitrous oxide anæsthesia by preventing elimination, for, as pointed out above, it produces much congestion and cyanosis and this relieves itself locally by increased hæmorrhage from the gums and empty tooth-sockets, so that the patient's mouth rapidly fills with blood, whereby the operator is much hampered or even forced to abandon the operation, as there is not sufficient time for systematic sponging. Further, unless the patient's head be kept in such a position that the lower jaw and floor of the mouth form a sort of reservoir for the collection of this blood, it will gravitate backwards, and at the first inspiration (which is always of unusual depth) it will probably be sucked into the air-passages, necessitating immediate tracheotomy to save the patient's life. It should always be our aim, therefore, to maintain the patient's head in the most convenient position for the operator consistent with the safety of the patient, but where the above methods are adopted the operator has to work in an unfavourable position, and thus the ultimate gain in time is practically of no value owing to the increased difficulties of the extractions.

The late Mr. Clover, aware of the advantages of obtaining a prolonged anæsthesia with nitrous oxide in dental surgery, mace experiments with a "nose-piece," by means of which he hoped to continue the administration of gas and thus to prolong its anæsthetic action during operations on the mouth after the ordinary face-piece had been removed. To this end, when the patient was fully anæsthetised, he fitted over the nose a small accessory inhaler, to which nitrous oxide was supplied by means of a stopcock and tube communicating with the gasometer. He expected that sufficient gas would be inspired through the nose to maintain an anæsthesia already produced by the ordinary method and thus to enable the surgeon to undertake longer operations upon the jaws than could otherwise have been attempted except under the influence of ether. The results did not prove sufficiently satisfactory and Mr. Clover abandoned the idea. The apparatus was difficult to keep properly sdjusted, so much air was breathed through the mouth that the anæsthesia was uncertain, and finally the gas could not be supplied at sufficient pressure to obviate this evil without being likely to cause damage to the olfactory region, the frontal or even the maxillary sinuses. Having found that prolonged administration of nitrous oxide for ordinary surgical procedures was attended with the best results, I attempted to devise a method whereby this anæsthetic could be employed in extensive operations in dental surgery, and I soon discovered that the only channel for the convenient administration of the gas after the removal of the face-piece was by means of a tube passed along the inferior meatus of the nose. First, a small-sized celluloid female catheter seemed to be the most suitable instrument for this purpose; but this was discarded owing to its rigidity, for a surprisingly large number of patients are found to have a deviated nasal septum, an unusually arched palate, causing a corresponding curve of the floor of the inferior meatus, or much depressed inferior turbinated bones covered with hypertrophied mucosa which would be considerably damaged by the forcible passage beneath them of a rigid instrument. Next a No. 7 (English) soft rubber male catheter was tried. This answers admirably, except that it takes longer to pass and is liable to be blown out by the pressure of gas supplied through it combined with the patient's expiratory efforts, and also on account of its flexibility it is more difficult to keep out of the operator's way without kinking. Lastly, a soft gum elastic silk tube was employed. This tube is equal in diameter to a No. 7 catheter ; it is six inches in length, and its distal end is made like an *a boule* male catheter. This is solid up to the orifice, which is situated half an inch from the point, the proximal end being expanded to receive the conical attachment of tubing, in connexion with the portable steel cylinders in which the gas is usually stored. Two of these cylinders are connected up in the usual manner and fitted with a stopcock, which has been made to my design by Messrs. Barth and Co. It is a tube of inlet to a stopcock chamber, which is screwed into the cylinder connexion, and lies in the space between the cylinders so as to be out of the way. This chamber is fitted with a two-way stopcock, the tap of which is an elongated broad arm, so that it can be easily turned by the foot. From the chamber lead two tubes of exit. The tap is so arranged that when it is turned on to either of the two exit tubes the arm lies over that tube through which the gas will flow when liberated from the cylinders by means of the ordinary foot-key. The whole gas supply can thus be entirely controlled by the administrator's foot. The exit tubes, like other parts of the stopcock, are made of brass, are placed at an angle, and are an inch long, with bulbous ends so that rubber tubing can be easily slipped over them. To one is attached Dr. Hewitt's gas inhaling apparatus ; to the other the connexions of the nasal tube, which consist of the following ;—A small stout rubber "expansion" bag, intended to regulate the usually irregular flow of gas from the cylinders. This is fixed by one end to a stopcock exit, the other extremity being connected by tubing to a thinner and larger rubber bag covered with netting, which is continued as a small tube bearing a conical vulcanite nozzle, fitting into the funnel-shaped extremity of the nasal tube proper. This second bag is fixed by a hook to the head-piece of the dental chair, and by noticing its degree of expansion the anæsthetist is enabled to tell whether his patient is getting a sufficient supply of gas to maintain anæsthesia.

The administration is conducted in the usual way until the patient has lost consciousness ; then, taking the precaution that the ordinary gas bag is full, the stopcock having been turned on to it, and choosing the end of an inspiration, the face-piece is removed, the nasal tube is rapidly passed (this can be done during a single expiration), the face-piece is reapplied, and the stopcock is turned, so that the gas now only flows through the nasal tube; at this stage the inhalation is continued by both nasal tube and face-piece up to full anæsthesia; the face-piece is now finally removed, the operation is begun and narcosis is maintained by the nasal tube alone. To prevent the return of consciousness the "netted bag" must be kept fully distended, the gas being supplied at considerable pressure. In a typical case the patient is but slightly cyanosed and there is little or no jactitation (as he inhales sufficient air through the mouth and the free nostril), but the conjunctival reflex is absent. Should, however, he be of the type which requires but little gas, or if for any reason the mouth be considerably obstructed either by sponges or by the operator's hand, the nasal septum being at the same time markedly deviated towards the free nostril, the intake of air in proportion to the intake of gas is so lessened that deep cyanosis, jactitation, and even opisthotonos are produced. If, on the other hand, more gas is necessary to maintain anæsthesia, the free nostril can be closed by the anæsthetist's finger, or even the mouth can be partially obstructed by inserting a sponge. The extremity of the nasal tube is made to impinge on the posterior pharyngeal wall in order that the flow of gas may be directed by means of the orifice in its under aspect immediately over the upper opening of the larynx, therefore great care must be taken not to permit a very free supply of gas from the cylinder, as by so doing an over-dose would easily be administered.

With this apparatus I have succeeded in keeping patients fully anæsthetised for operations lasting over four minutes, and have only then discontinued the administration because the operation has by that time been completed, and not because the anæsthesia could not be further maintained by this method. The tube has been employed in over 100 cases, in 2 of which the operation of tapping and draining the antrum of Highmore was performed, and in 1 immediate torsion was exerted upon a lateral incisor tooth. But in a series of 30 consecutive cases of tooth extraction amongst patients of both sexes of which I have made notes, the average period of anæsthesia was roughly 1 minute 50 seconds. These cases were chosen as suitable ones for the employment of the tube on account of the necessary extractions being very numerous or appearing to be of unusual difficulty; and in only one case had the operation to be curtailed; in this case the hæmorrhage from the gums was so profuse that on this account, after 12 extractions, the operation had to be stopped as no sponges were at hand. The anæsthesia in this case lasted 2½ minutes. The tube is easily kept out of the operator's way by being slipped over and behind the patient's ear. There is no fear of conveying sepsis, for the tube can be sterilised with the greatest ease snd in hospital practice I am in the habit of employing two, which are used alternately, so that one can be soaking in antiseptic solution while the other is in actual use. The nostril on the same side as that on which the anæsthetist stands is the more convenient for the passage of the tube, but as the nasal septum is not infrequently deviated to this side one is compelled occasionally to pass the tube along the opposite nostril. The only absolute contraindications to its use are marked hypertrophy of the nasal mucosa or adenoid growths in the naso-pharynx, in either of which cases troublesome hæmorrhage would result from injury to these tissues. Great care must be exercised in passing the tube so that it can be felt to impinge on the posterior pharyngeal wall, as it is easy to pass it too far and so to inflate the œsophagus and set up swallowing movements and vomiting. Even where due caution is practised vomiting seems to be less uncommon than in ordinary nitrous oxide anæsthesia and for this reason patients should be recommended to abstain from food for two or three hours before the administration. If this precaution be taken and one is careful also that the patient swallows no blood, unpleasant after effects will be very rarely met with.

In conclusion Mr. Hilliard claims for this apparatus that it will render the employment of ether unnecessary in dental surgery; that owing to its small bulk and great portability it is more convenient and economical as regards the quantity of nitrous oxide used than any other apparatus employed with the same object; and, finally, that in skilled hands it is free from the risk of damage to the nose, the naso-pharynx, or the mouth, and is without danger to the patient.—*Lancet.*

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The distribution of prizes to the successful students at Charing-cross Hospital Medical School will take place on July 20th, Mr. T. McKinnon Wood, chairman of the London County Council, presiding.

# THE TREATMENT OF CHILDREN.

It requires a peculiar knack to handle children in a dental chair. They are wiser and more discerning than we often imagine. Harsh treatment will never make them our friends. While some will not submit, even under the most gentle treatment, the majority, however, are amenable to it. And after the first sitting, which should be short, and often only to get them acquainted with you, to let them see you are not the bear you were made to appear in their young imagination through dental office experience related by other members of the family. They may have heard: "You are going to the dentist; I am sorry for you—it's the worst place in the world. I hope that I will never have to go to another." With such remarks the child is familiar. Is it any wonder that they come to look upon a dentist as being something most awful?—something with long horns, fiery eyes, and smoke breathing from his nostrils. Just go back thirty, forty or fifty years, and put yourself in the child's place. Think of the description they have heard of that "grinding thing" which seemed to bore a hole through the top of the head. Can you imagine why a child should not be frightened out of its wits?

Meet the little fellow away from the chair; engage his attention on something entirely foreign to a dental office; let him see that you are only a man, and without the awful appendages with which he has associated you. Get him to feel that he is with a friend; examine his teeth sitting in an ordinary chair; ask him to come and look at your big chair and take a ride in it; lift the chair and let it down; dismiss the little fellow with an appointment, and he will come to fill it without fear. His dreams will not be of a savage animal, but of an ordinary, every-day man, with a kind heart. When he comes to fill his appointment, meet him in a friendly, social way. Tell him to go and get up in the big chair, which he will do readily. Go to him and show him some of the "funny things" that he has been so curious to know about. Get his head on the rest; tell him that his tooth has bugs in it—funny bugs—and that you will get them out if he will hold still.

From one step to another, the most timid child can be carried successfully through tooth-filling. Give him the appointment card for the next sitting; make him feel that he is of importance and that you have confidence in him. Note the time to him for his next call; he will be on hand a firm believer in you. If you find that you may have to hurt him a little, tell him so, and ask him to be a brave little man. Deal perfectly honest with him in all things. Talk to him and not to his attendant.—*Dental Weekly.*

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# THE INFLUENCE OF MENTAL FACTORS IN CAUSING DEATH FROM ANÆSTHETICS.

By Robert Ballard, M.R.C.S. Eng., L.R.C.P. Lond.

In some cases operative measures are decided upon, and the patient's consent obtained three or four days before the operation is finally performed, and during the intervening sleepless nights and long weary hours of waiting in bad, the ever-present idea of operation looms larger and larger in the patient's mind. With sickening reiteration he dwells again and again upon what he may imagine to be the details of the operation, and endures in anticipation a mental agony out of all proportion to the actual facts. Is it rash to assert that such a patient will be brought to the table with nervous and circulatory systems heavily handicapped for the strain which will be put upon them. The following case which occurred in my own practice well illustrates the grave condition which may be produced by fear and anxiety. A woman, aged twenty-three years, single, had suffered from frequently recurring attacks of appendicitis of considerable severity, and it was decided during a period of quiescence to perform laparotomy for the removal of the diseased appendix. The patient was a pale, nervous woman, much reduced in health by her former attacks, and with a marked neurotic family history on the mother's side. I first saw her the morning before the operation. She was then evidently anxious, but evinced, as far as I could judge, no signs of great mental distress. The pulse was 98, dropping ten minutes later to 89. The heart was normal in every respect, and the sounds, though hurried, were clear. On asking her to sit up I fancied I could detect a faint hæmic murmur at the pulmonary base. An examination of the chest gave negative results. When I left the pulse was 84, having dropped 14 in less than half an hour. I did not see her again until the following day, when she was brought into the next room for operation. Her condition was then typical. The heightened colour, hurried irregular respiration, compressed lips and fluttering eyelids spoke of the fear and suppressed excitement from which she was suffering. The pulse was 104, and the heaving impulse of the heart could not only be felt but seen. The superficial veins of the neck were slightly engorged, and on careful scrutiny showed a faint but distinct pulsation. Indeed, her condition was so serious, and the engorgement of the right side of the heart so obvious, that I was in doubt as to whether it was justifiable to operate at all. At the last moment I decided to give gas and ether, in spite of a slight bronchial catarrh from which the patient had been suffering. The sight of the Clover's inhaler added the last straw to her terror, and when on the table she begged that the operation might proceed without an anæsthetic. When fully under the influence of nitrous oxide the signs of engorgement disappeared, the pulse-rate fell, and she eventually took the ether well and made a good recovery. The chief element of danger in these cases is the profound disturbance of the circulation which commences in many cases some days previously, and persists until the patient is well under the influence of an anæsthetic. In the worst cases there are signs of serious embarrassment of the right side of the heart, and in two cases I have observed an undoubted temporary tricuspid regurgitation—physiological, no doubt, but none the less dangerous. It may be urged that inasmuch as this condition passes away as consciousness is lost its gravity has been exaggerated; but it is when the patient is still conscious and is struggling and holding his breath that the greatest stress is laid upon the heart and the occurrence of sudden syncope is most to be feared.—*Lancet*.

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We understand that under the will of the late Sir Robert Rawlinson, chief engineer inspector of the Local Government Board, St. Thomas's Hospital receives a legacy of nearly £35,000.

# Reports of Societies.

## THE BIRMINGHAM DENTAL STUDENTS' SOCIETY.

### A FEW DEBATEABLE POINTS IN GOLD FILLING.

An Epitome of a Paper read by Mr. R. W. Griffin.

Mr. R. W. Griffin said he did not think that gold filling was necessarily so difficult as many of the operations which the dentist is called upon to perform in the mouth, but it was undoubtedly an operation upon which considerable controversy existed.

He then proceeded to give his opinion on the best method of filling various cavities. Firstly, in very small cavities, either circular or with four walls, in which it is easy to obtain an undercut, he did not advocate the use of starting points on the ground that they were unnecessary, as the filling can be started almost anywhere, even with foil if it was carefully condensed on the floor of the cavity.

Passing to cavities in which corners or whole parts had to be restored, he said that it was impossible to obtain too much hold for the filling, as the mechanical strain was usually very great, and starting points must be made, and in addition grooves should be cut all round the cavity ; these grooves need not be particularly wide, but care must be taken to cut them in the direction opposite to the point where the greatest stress is likely to come. A filling of this description was, he said, a piece of engineering, and should be treated as such. But with regard to contour fillings generally, the question arises, "How much particular use are they when finished," and he would like to hear some opinions on the subject. He quoted Mr. Tomes, who, in his Dental Surgery says, "That the majority of English people will not have big contour fillings in the front of the mouth ;" the question therefore resolved itself into one of utility for purposes of mastication. The advocates of contour fillings claim that they restore the natural form of the tooth, which presumably is the best, and by so doing the gum is protected. He cited an American authority quoted by Mr. Tomes, who says that the majority of contour fillings are useless, and waste of the skill of the dentist, the money of the patient, and the time of both.

Mr. Griffin went on to say that he thought that more contour fillings were inserted by students at the Hospitals than in private practice, for English patients will not, as Mr. Tomes says, stand tremendous gold fillings in their front teeth. But with regard to back teeth, if a contour filling could be inserted which would withstand the tremendous strain of mastication, by all means let it be done, as by this means the function of the organ was entirely restored, and that is the great object of all conservative treatment, but in the front teeth he did not think that the fraction of an inch of cutting surface was of very great importance.

Proceeding to the discussion of approximal cavities, Mr. Griffin said that he thought there were few debateable points in connection with filling them the classical methods being almost universally adopted, and the next point he raised was upon the qualities of the different forms of gold generally employed. Commencing with cohesive foil, he said that undoubtedly the best fillings were done with this material, that is if each piece was carefully condensed, for the simple reason that it was impossible to help condensing the filling right through, as such a small thickness is introduced at the time; the great drawback to foil was the length of time needful to do a careful filling, a point of considerable importance.

With regard to cylinders, good fillings could be done with them and also bad ones. If they were placed parallel to one another, as far as possible, as good a filling might be made as with foil. But if they are condensed from the ends they are practically speaking crumbled up, leaving minute fissures, which prevent the gold from being properly condensed.

Coming to the mat gold and solila, much could be said both for and against these materials—the idea was that they could not be properly condensed. This might be so, but their claimed advantage was that they could be more quickly condensed than any other gold. The tendency undoubtedly existed towards putting it in larger quantities than ordinary gold, so that the surfaces might not be properly welded together, as it was a well-known fact that if each piece was not properly condensed before another was added, it was impossible to condense it afterwards.

He quoted the following from Mr. Tomes' work:—

"The attainment of absolute solidity in gold fillings made in the mouth is not possible. If crystal gold be examined under the microscope it will show a certain amount of porosity. If foil be employed it will show the presence of fissures in the peripheral surface of the plug. Now if moisture find its way to the surface of the former, it will be spread over the whole circumference of the filling, but in the latter it will be confined to minute fissures situated at distant intervals over its surface."

The resistence of the tooth is not sufficient to allow as great a degree of solidity as in an ingot.

On the question of the relative value of cohesive and non-cohesive gold and a combination of the two, Mr. Griffin said that the arguments for each of these classes were many. The chief advantages of cohesive were that contours could be restored; for non-cohesive, that with frail walls and at cervical margins it could be forced into the interstices with less danger of fracture or mechanical disintegration of the margins of the cavity.

There was no doubt that non-cohesive gold could be worked with much more ease than cohesive, and that for crown cavities in molars and approximal cavities in bicuspids and molars, the best results were obtained with non-cohesive gold.

The relative edge-strengths was another point that we sometimes heard discussed, the general idea being that non-cohesive was far superior to cohesive in this respect. He hoped that someone with experience to back his arguments would give the meeting his opinions on this subject.

In conclusion, Mr. Griffin apologised for the sketchy character of his paper, but he hoped that many other points besides those he had mentioned would be raised in the course of the discussion. If he had been egotistical, he must be excused, on the ground that it was a characteristic of all students.

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# Dental News.

## DEATHS UNDER ANÆSTHETICS.

A death under chloroform occurred recently at Bispham. The patient, a lad, aged sixteen years, had injured his arm at football and the resulting stiffness necessitated forcible movement under an anæsthetic and the removal of a sequestrum.

The lad was apparently somewhat delicate and pale. In the evidence given before the coroner's court, according to the report which has reached us, the nurse, who, by the way, appears to have been questioned as if she were a medical man, stated that the patient did not seem to be taking the chloroform as he ought to have done. It was "sprinkled on lint at intervals," and the boy was told to count aloud. At 24 he stopped and although urged to say 25 he made no reply. The medical man drew him to the side of the bed and performed artificial respiration. In spite of this and other restorative measures he died. The chloroformist stated that he gave only 40 minims of the anæsthetic when a convulsive seizure came on. Death, he believed, was due to paralysis of the respiratory centre the result of shock and chloroform. In reply to a question why ether had not been given for the present operation, as it had been on previous occasions he said he had ether with him but decided that chloroform was safer under the circumstances ; indeed, he would not have liked to have given ether. We cannot but wish that the real properties and limitations of ether were better understood. In the report of the next case we are informed that ether or the A.C.E. mixture could not have been given for the kind of operation performed. The operation appears to have been one for hæmorrhoids. The fact that the patient was "fat and flabby" possibly made the anæsthetist anxious to avoid venous congestion and struggling such as may occur in such people when the ether is not well taken. The patient was a woman, aged twenty-seven years. Chloroform to the extent of 2 drachms was given (?) by the open method when the woman died. She struggled "very much indeed" when the anæsthetic was being administered. It seems more than probable that an overdose was inhaled during the struggles. Birmingham has to report another fatality under chloroform. The patient, a child aged ten years, was admitted into the General Hospital to undergo an operation for removal of post-nasal adenoid growths. Chloroform was given by an experienced anæsthetist and the operation was rapidly performed. The child was recovering from the anæsthetic at the time of the operation and death was believed to be due to shock reacting upon a nervous system incompletely protected by full anæsthesia. Respiration was noticed for one and a half minutes after the circulation had become imperceptible. The coroner in this case urged the necessity of fully advising parents before giving their children an anæsthetic. We concur with the recommendation.—*Lancet.*

## ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The following gentlemen having passed the necessary examinations have been admitted Licentiates in Dental Surgery :—

William Monro Anderson, Lewis Fryer Barton, William Henry Bean, Surg.-Capt., M R.C.S. Eng., L.S.A., Lond. ;

Frank Russell Bishop, George Parminter Cardell, Alfred Eastiand Carden, Harold Cardwell and Frank Coleman, Charing Cross and the Dental Hospital of London :

Sidney d'Alton Corbett, St. George's and the Dental Hospital of London ;

Frederic Ledger Etheridge, St. Bartholomew's and the National Dental Hospital :

Sydney William Garne and Zephaniah Job Gibson, Charing Cross and the Dental Hospital of London :

William James Grewcock, Mason University College, Queen's General, and the Dental Hospital, Birmingham ;

Hubert Malcolm Griffiths, Middlesex and the National Dental Hospital ;

John Harper, M.R.C.S. Eng., L.R.C.P. Lond., St. Thomas's and Guy's Hospital Dental Department and School ;

Herman Charles Hessenauer and Frank Holding, Charing Cross and the Dental Hospital of London ;

Reginald Crompton Holt, University College, Royal Infirmary and Dental Hospital, Liverpool ;

William Warwick James, Middlesex and the Dental Hospital of London ;

George Frederick William Jennings, Charing Cross and the Dental Hospital of London ;

William Henry Jones, Owens College, Royal Infirmary, and Victoria Dental Hospital, Manchester ;

Harry Percy Joscelyn, Mason University College, Queen's General, and the Dental Hospital, Birmingham ;

William Henry Loosely, Guy's Hospital, Dental Department and School ;

Arthur Robert Marks, St. George's and the Dental Hospital of London ;

Charles Ernest Mountford, Mason University College, Queen's General, and the Dental Hospital, Birmingham ;

Edward Giles Narramore, University College, Royal Infirmary and Dental Hospital, Liverpool ;

William Nicholson, Owens College, Royal Infirmary, and Victoria Dental Hospital, Manchester ;

Charles Deane Outred, Guy's Hospital, Dental Department, and School ;

Alfred Mitchell Partridge, University College, Royal Infirmary and Dental Hospital, Liverpool ;

Howard James Paterson, Mason College, Queen's General, and the Dental Hospital, Birmingham ;

Oliver Crace Penfold, Middlesex and the Dental Hospital of London

Harry Webb Robey, Charing Cross and the Dental Hospital of London;

Arthur Lewis Rowley, Guy's Hospital, Dental Department and School;

William Albert Hodgins Saul, University College, Royal Infirmary, and the Dental Hospital, Liverpool;

Frederick William Stanley Stone, M,R.C.S, Eng., L.R.C.P. Lond., St. Thomas and Guy's Hospital, Dental Department and School;

Ernest Stringfellow, Guy's Hospital, Dental Department, and School;

Harry Tattersall, Middlesex and the National Dental Hospital;

Wallace Atkinson Taylor, Westminster and the Dental Hospital of London:

Duncan Powerscroft Tracey, Reginald Umney, Ernest William West, and Thomas Henry Wilkinson, Guy's Hospital, Dental Department, and School;

Harry Winder, Charing Cross and the Dental Hospital of London.

21 gentlemen were referred to their professional studies; 20 for six months, and 1 for one year.

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## ALLEGED BREACH OF AGREEMENT.

An action was heard on June 30th, before Mr. Justice Romer, in which Messrs. Story and Co., Limited, who are dentists at Whicham, Cumberland, asked for an injunction to restrain the defendant, Pettigrew, from carrying on business within 20 miles of Whicham, in breach of an agreement. The plaintiffs' counsel, Mr. Ashton Cross, said the defendant had been in plaintiffs' employment since September, 1896, down to a recent date. He had now started on his own account, and had not only put up a plate on his private house, stating that he was "late of Market Square" (the plaintiffs' address), but had sent a boy to stand outside plaintiffs' door to give circulars to persons entering.

Mr. Mark Romer, for the defendant, asked that the motion might stand over, in order that the affidavits of the plaintiffs might be considered.

Mr. Justice Romer allowed the motion to stand over till next Friday, on the defendant undertaking not to solicit the customers of the plaintiffs' in the meantime, nor to induce persons not to employ the plaintiffs, and not to advertise.

# Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

*To the Editor of the "British Journal of Dental Science."*

Dear Sir,—Will you kindly allow me a little space to reply to Mr. Fletcher's letter in your Journal for June, having reference to my book on "Dental Metallury." The majority of the points which Mr. Fletcher considers need correcting in the new edition are merely a matter of difference of opinion. For rolling large ingots into plate suitable for dental purposes, a rolling mill, such as Mr. Fletcher describes, would obviously be necessary, but for rolling small ingots and for light work, such as that usually performed in the dental laboratory, the rolls I have described on page 63, are well adapted, I agree with Mr. Fletcher that the purification of sweep can only be done economically on a large scale. The method I have given is that most generally adopted for the purification of this class of material. By this method the gold and silver are obtained in a pure state, ready for the preparation of new gold plate and any desired fineness The process of boiling with nitric acid and melting merely removes a *part* of the silver and copper in the alloy, and gives on melting an alloy of unknown composition, the finess of which varies with the class of scrap treated. When, however, gold of definite standard is not required, the method affords, as Mr. Fletcher states, a *rough* but satisfactory way of reducing dirty filings and waste to good working gold. The analysis of gold amalgam, which I have given under Mr. Fletcher's name on page 133, is taken, as I have stated, from the American system of Dentistry. The time at my disposal was not sufficient to enable me to verify each analysis quoted, and I am obliged to Mr. Fletcher for calling my attention to the error which I will rectify in the new edition. The statement that a "true compound is *never* formed" by the combination of metals with mercury, is not in harmony with the results of modern experimental research on alloys and amalgams, which reveals the existence, in many cases, of certain well defined compounds of the metals. As I have pointed out on page 120, "The solid amalgams appear to consist of metals united with mercury in atomic proportions, forming definite chemical compounds, and are usually regarded as such, while the liquid amalgams generally consist of a compound dissolved in an excess of mercury. The excess can frequently be separated by simple pressure through chamois leather, the solid amalgam left behind most probably consisting, in many cases, of metals united in atomic proportion.

Joule, as far back as 1863, pointed out that when various amalgams containing excess of mercury were subjected to pressure, mercury was removed, and definite bodies remained containing mercury and metal in the ratio expressed by definite formulæ, such as $\mathrm{Cu\,Hg}$, $\mathrm{Ag\,Hg}$, $\mathrm{Zn\,g}$ &c. Other more recent experiments have also supplied additional evidence. Under these circumstances I think it is not unreasonable to suppose that the plug, after removing all excess of mercury, contains the constituent metals in many cases in the form of compounds.

Preparation of Alloy for Amalgams, page 148. Considering the small amount of platinum present in the alloys for amalgams, when that metal forms a constituent, the method of preparation I have given can be followed without any difficulty.

Purification of zinc, page 183. The method I have given is that most generally adopted, and is satisfactory. The method of Mr. Fletcher may effect the purification more speedily, but the addition of *strong* hydrochloric acid to hot zinc is not a desirable experiment to perform.

In conclusion I would thank Mr. Fletcher for his remarks, and for calling the attention of English dental students to my book.

I am,
Yours faithfully,
ERNEST A. SMITH.

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*To the Editor of the "British Journal of Dental Science."*

Sir,—Seeing that the Dental Committee think of taking action against "covering" runners of unqualified men, &c., and seeing that the Medical Council cannot know what is going on in all parts of the country, and London in particular, would it not be well for them to invite information so that when a qualified man finds an unqualified man in his neighbourhood, on sending the news straight to the Council they could prosecute forthwith. That appears to me to be the only rational way to cope with this matter; as things are now, the Act might as well never have been framed for all the use it is. It is openly evaded to my certain knowledge, both here and in the country.

Yours truly,
NORTH LONDON.

July 11th, 1898.

⁂ Our Correspondent is, we think, a little too sanguine. The Committee will require a sworn statement from the informant with regard to the facts in the case of "Covering." In the case of "an unqualified man starting in practice in his neighbourhood," our Correspondent may himself prosecute in any *infringement of the Act*. The Council itself could do no more.—Ed. B. J. D. S.

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On June 24th, William Andrew Robertson, dentist, Barnstaple, at Southmolten County Court, sued John Abbotts and his wife for £2 10s., for part of a set of teeth supplied to Mrs. Abbotts. The defence was that although altered several times, the teeth did not fit. His Honour Judge Beresford thought plaintiff had exercised his craft to the best of his ability, but the fact that they would not masticate may have arisen from other reasons than want of skill.

# Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester during the month of JUNE, 1898.

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|---|---|
| Number of Patients attended . | 738 |
| Number of Extractions . . | 443 |
| Number of Extractions under Anæsthetics . | 160 |
| Gold Stoppings . . . | 43 |
| Other Stoppings . . . | 115 |
| Miscellaneous {advice, temporary fillings, scalings, dressings, &c. . . | 167 |
| Gold and Porcelain Crowns . . | 9 |
| Inlays . . . . | 1 |
| Total . . . | 1676 |

W H, JONES, L D S Eng., *House Dental Surgeon.*

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications : name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under :

Twelve Months (post free) . 14s. od.

Post-office Orders to be made payable at the Langham Place Hotel Office, to G. E. Skliros, 289 & 291, Regent Street W. A single number sent on receipt of seven (penny) stamps.

British Journal of Dental Science.

No. 733. LONDON, AUG. 1, 1898. VOL. XL.

# CATAPHORESIS *

By A. B. Wolfenden, L.D.S., I.

Cataphoresis has almost unlimited possibilities, and the variety of cases where its aid can be brought into use are very great. For instance, in the preparation of cavities where the dentine is sensitive, where it is desired to make a good exposure to hasten the destruction of the pulp, the application of medicaments to putrescent pulp canals, and for the treatment of pyorrhœa alveolaris. The current can also be used with advantage for immediate separation of teeth, the removal of fillings where acute periostitis is present, and for the bleaching of discoloured teeth.

In all cases, where possible, the rubber dam ought to be applied, although good results can be expected where the tooth can be kept dry with napkin and saliva ejector. The dam having been fixed, all finger rings should be removed from the hand of the patient which is to hold the cathode or negative pole. The apparatus being ready for use, a fresh solution of cocaine is made with warm water; a pellet of wool dipped in the cocaine solution is put into the cavity, the point of the electrode is placed upon it, and the indicator is very slowly turned to about five volts. Allow it to remain two or three minutes at this, then very slowly turn on more

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* Read before the Manchester Odontological Society.

current till ten or fifteen volts are reached, and continue the application according to the work it is wishful to perform. For the preparation of cavities seven to ten minutes is usually long enough ; for the removal of pulps, continue twenty to thirty minutes. If the pellet of wool in the cavity becomes dry, turn off the current, and either moisten again or put in another pellet. For the removal of pulps, I find it most certain to nearly expose after fifteen minutes application, then give another ten minutes, when the pulp can be removed painlessly. From experience, one finds that the softer the dentine the more rapid and certain is the action of the current; hard dentine of healthy teeth, and dentine where arrested decay has taken place, and secondary dentine, take very much longer to penetrate.

The electrode points, as usually supplied, do not cover the surface of decay sufficiently, so that one occasionally gets sensitiveness in certain parts of the cavity. To obviate this, tin foil, platinum foil, or scraps of soft platinum can be readily cut to size of the cavity, and placed over the wool, so as to diffuse the current more thoroughly.

It was found necessary to remove several osteos, and replace them with gold fillings. In all the cavities very much longer time was required to deaden the sensibility of the dentine than in teeth where fillings had not been previously inserted.

The electrode should not be taken away or displaced from the cavity without turning off the current, otherwise the patient will receive an unpleasant shock. The point of the electrode should be kept away from all metal fillings ; suppose there are two cavities between two centrals, and one has been filled with gold, by varnishing the gold filling, and placing a small piece of rubber dam over, it becomes thoroughly insulated. By taking this precaution, no shock will be caused.

With your kind indulgence, gentlemen, I should like to mention one or two cases where cataphoric treatment has been employed :—

1st. The patient, a lady of very nervous temperament, who usually is exceedingly difficult to work for, required a small bridge. The points for anchorage were the left canine root, and the left upper first molar, which was very much elongated owing to the loss of the occluding tooth. The molar was alive, and it was necessary to shorten it considerably, as a lower case was to be made. With a fissure bur, the enamel was cut through to the dentine, when the patient showed signs of pain. Cocaine on wool was applied to the grove made by the fissure bur, and the platinum wire of the electrode pressed on the wool. This was kept on for ten minutes, and the bur applied again. Four applications of the current of ten minutes each were given in fifty minutes ; a good exposure was made practically without pain ; a devitalizing fibre was put in, and patient sent away. She returned the day but one after ; the pulp was dead, the remaining portion of crown was cut off, pulp removed, canals filled, tooth coned, and band fitted for gold crown.

Case 2. Gentleman with a left lateral root nearly broken to the level of the gum. It was so close that it was difficult to devitalize it in the ordinary way, but the root was just long enough to get on the rubber, and fasten with silk. This was the first pulp I had attempted to remove ; the current was used as strong as could be comfortably borne ; in fifteen minutes the pulp was removed absolutely without pain, and at the same time a cap and pin were fitted for a Richmond crown.

Case 3. Patient, a gentleman, right lateral to prepare for a Richmond ; found pulp alive ; root so close to gum that it was impossible to apply dam ; a napkin was tucked under upper lip, and saliva ejector used. Cataphoresis applied, and in fifteen minutes pulp removed successfully.

Case 4. Patient, a lady with a right lateral very badly discoloured, and containing a large amalgam filling. Owing to its unsightly appearance she wished to have it crowned. The filling was so large that it was expected the pulp would be dead ; the crown was cut off with a fissure bur without pain, care being taken to leave a little of the crown to apply rubber if needful. When the drill was applied in the direction of the root canal, it was found there was still some live pulp remaining. Cataphoresis was used for thirty minutes, and the pulp was removed with considerable pain. This was due probably to the formation of secondary dentine, which had not been penetrated by the current.

Case 5. Patient, youth age 16. Acute periostitis of upper right first bicuspid, caused by death of pulp under large amalgam filling. Pad of paper fibre lint was moistened with strong solution of cocaine, and cup electrode applied for about fifteen minutes. The filling was removed with very little pain.

It is very necessary that the current be controlled within the boundary of the pain limit, and important to avoid impulses of current by rapid advancement, or by movement of, or displacement of, the anode, and of attention to the maintenance of a moist state of the anodal and cathodal contacts.

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# A SKETCH FROM LIFE.

By Charles Fox, L.D.S.

It was not ever thus with Dr. Arcadius Plato, M.D., L.D.S. who within quite recent times ploughed the wooden pavements of London with his rubber-tyred brougham. Armed *cap a pied* in conventional array, silk helmet, irreproachable sartorial accoutrements, and footgear of light fantastic elegance, he held his own in the polished ranks of the dento-medical brigade. But underneath the vestments of fashion the doctor suffered from an enlarged heart, that beat responsive to all the woes of humanity. To the Robin Hood plan of relieving the pockets of the rich that he might relieve the wants of the poor he gave faithful adherence, but the usual conscience salve failed to satisfy his cravings for a more ideal life. His glorious muscles were getting out of tone, and the hunting field, golf, tennis, and kindred methods of imitation work yielded insufficient stimulus to the executive machinery while leaving the cardiac affection in a dismal state. And once upon a time it came to pass that Dr. Arcadius fell into queer company. He met with Count Leo Tolstoy, not in the flesh, but in the vivid realism of his later writings. And as this mental pabulum came on the top of many well digested meals of Carlyle, Emerson, Ruskin, and other of our latter day prophets, the doctor was a ruined man from the ordinary standpoint.

He became a hopeless crank, with views and notions. He sold his West-end practice, disbanded his devoted menials, sent the four-footed ones to Tattersall's, and nine tenths of the goods and chattels among which he had pined for freedom, to the auction mart. Then taking his better half under his arm, and bidding the olive branches follow, he shook the dust of Belgravia from his feet, and went over lock, stock, and barrel to the ranks of the horny-handed majority.

Let us take a peep at him now as he puts the wise Russian teacher's prescription into practice. Three or four hours per day heavy work for back and shoulders; work that makes the frame tingle with toil and every sweat gland do its duty. A similar spell of lighter activity where wrist and finger, eye and brain keep touch as the handicraftsman plies his task. Then is the man prepared for mental work of the best description; for intercourse with his fellows, spirit to spirit' the eventide of day as the eventide of life aptly drawing nearer to the things of deepest import.

"His cottage is a thatched one," to quote the well-known line, and fragrant honeysuckle really climbs around the porch. Abernethy advised a dyspeptic patient to live on sixpence a day and earn it, and although Dr. Arcadius doesn't quite follow out this idea, there is very little consumed in Utopia cottage that he does not raise himself in the garden farm around it.

But the dual qualification is by no means wasted, though he no longer seeks to rise *by degrees* into higher regions of society. Those who need him most, and under the old condition were as far off as a sexton from an archbishop, find the neighbourly doctor a friend of goodly sort.

A heavy yokel, red-eyed, flabby-cheeked, calls one morning on the delving doctor, and this is the reception he meets in the fresh air consulting room.

"Out of sorts, eh Giles? wife and children out of sorts too! Victuals no interest to you, wake up tired, all the lot of you. Don't stand there with your hands in your pockets; if I help you, you must help me, that's fair, isn't it? We can work and talk too, so earth up the celery while I find out what's the matter with you. Muscular system all right I see; better always after you've been out of doors a bit? Humph! sounds as if there was something wrong indoors then. How many of you sleep in that little bedroom, eh? Six—and the window shut, of course. Draught? I should think so with six pair of lungs using up the air, a bit of fresh does try to rush in, but draughts can be used the right way friend Giles so you and I this afternoon will turn carpenters."

And Giles and the doctor rigged up an arrangement that spread the draught over the ceiling instead of down on to Mrs. Giles' devoted head. More than this, he found room for the two biggest lads in a disused cowhouse, helping with his own collegiate hands to make the apartment fit. This was all done without any patronising "I'm wiser than you" sort of air about it, but just one working man helping his mate out of a fix.

"Now Giles, you owe me four hours. You can pay me on my garden, or four hours of your own wages, you know my rules, no more, no less. And Giles being short of cash paid in four such thorough going hours of digging that the doctor's heart felt better than after a morning at St. Giddlesex out-patient ward.

It was rather amusing when a patient from the other end of the scale came under the rule of wage against wage; for a gallant stockbroker was precipitated from his four-year-old near Utopia Cottage and a broken leg claimed 50 hours of Dr. Plato's time in mending and going to and fro tending. Now the millionaire man rashly boasted one day of how many pounds he made per hour, forgetting his eccentric surgeon's rule of service, and cursed the profession roundly when a bill running into three figures, made out in hours at so much each, came in. But I fancy the timber for Giles's new room really came from that broken leg, as Dr. Plato entered in his case book, "To repairing worker's wooden house by repairing gambler's understanding."

The dental chair is in occasional request, but he has a theory that no man ought to rack his nerves for more than two hours a day in that trying occupation. Still a good deal may be done in two hours, and many first-rate stoppings in the chawbacon jaws around, costing from a few pence each testify to the way his art is appreciated. But dentally as medically it is prevention he aims at. He will examine every mouth in a house from grannie to toddlekin, take an inventory of the food supply, ventillation, undue familiarity between well and cesspool; and having cleaned out a few abuses oral, sweep away many abuses rural.

In one authentic case on record, for his doings are matters for gossip among rich and poor, he cleaned an augean pit of horrors within ten feet of a widow's back door, and then set to and prepared another dry earth apparatus far enough away for safety. He knew it was useless scolding, or suggesting improvements; the only way was to turn up his sleeves and set the wrong to rights, and his heart regained strength as he saw the widow's mites throw off the ever-recurring fever.

If love means life this out-of-the-way doctor verily lives, for his humble neighbours simply adore the man. Healthy?—you should see him for yourselves; why it would almost make a lame man leap to watch his bounding step, hear his cheery laugh, and see the twinkle in his bright blue eye. Wealthy? eh, far richer with his "tanner" in fair exchange for a labourer's hour than we with our guinea from the ups and our charities to the downs with their taint of pauperism about them. Wise? I would fain believe so, after learning of this method of solving the tangled problem of civilization; for my sketch is in its main outlines a portrait of one who is acting thus within forty miles of London to-day. It is the greatest trial to many good fellows having to pass the needy from a dental point of view by on the other side, because they are needy in pocket too. Well, here is one way out of the difficulty without waiting for new hospitals or Government regulation.

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After Extracting Abscessed Teeth always syringe the sockets with hot water and an antiseptic. Especially is this wise in the lower jaw, where by gravitation pus may remain in a socket after extraction.—*Dom. D. Journal.*

British Journal of Dental Science.

LONDON, AUGUST 1, 1898.

## THEORIES.

In our last issue we published an interesting paper on "Theories," by Mr. John P. Headridge, which opens the mind for consideration as to whether many of our cherished beliefs in the cause of dental phenomena have any basis in fact. When a theory becomes accepted, it is copied into all the text-books and gradually becomes an article of faith, to upset which is considered as impious as the attempt to prove that Bacon wrote "Shakespeare," or the endeavour to cast doubts on the authenticity of the legends of King Arthur or William Tell. The fact is, we know so little, and we are so desirous of coming to a conclusion without sufficient data, that any theory which seems to provide a reasonable solution of the problem is accepted. Mr. Headridge pointed out several instances in which he was not at all satisfied in accepting existing theories, and practice based upon those theories. The only way to be satisfied is to adopt the Hunterian maxim, "Don't theorise, try experiment," and we hope that Mr. Headridge's dissatisfaction may be followed by research and further gain to our knowledge. A case occurs to us in which the importance of experiment was demonstrated. A patient was seen who complained of rapid caries attacking his teeth, previously sound, during the past two years. Enquiries elicited the fact that he was a great sufferer from asthma and inhaled many times during the night the fumes of an "Asthma powder." This powder contained large quantities of nitrate of potash, so the theory was quickly formulated that the nitrate of potash on being ignited produced nitrous and nitric acids, which would naturally corrode the enamel. Nothing could be simpler, but unfortunately for the theory, the fumes on being tested with litmus paper, gave a strongly alkaline reaction, so that the theory was exploded.

There are two theories, amongst others, which are pretty deeply rooted in the medical and dental professions, and also in the minds of the general public, which have been proved to have no real foundation. One is that, assuming a tooth is valueless, and condemned to extraction, it should not be extracted until acute periostitis or abscess present has subsided. The other is that gas should not be given to, and a tooth extracted for women far advanced in pregnancy.

As regards the first case, it is our duty to extract as soon as possible. By doing so, we remove the cause of the mischief, we prevent more serious results, such as increased inflammation or suppuration, the abscess breaking on the face or neck, the destruction of more tissue than is necessary, antrum trouble, etc. The risks are greater in leaving the tooth in than in extracting, while the suffering is generally much curtailed, at any rate it is the lesser of two evils. But care should be taken to render the alveolar cavity free from septic matter which may be already there, or which may be forced into it by the application of the forceps. Cases have been known in which grave conditions have supervened through septic matter having been introduced into fresh territory. In all such cases, the socket should be well syringed with a warm antiseptic solution, and the patient instructed to use similar precautions.

With respect to our second point we cannot do better than quote from a paper by Dr. Guiliot, in which he enumerates a series of cases in which he extracted teeth from women variously advanced in pregnancy even up to the ninth month. While he admits that extraction without anæsthesia or with only local anæsthesia under these circumstances may produce a miscarriage, yet he avers that under the influence of nitrous oxide gas his cases have suffered no untoward symptoms whatever. Our own experience corroborates that of Dr. Guillot.

**The Missionary Dentist.**—We have every sympathy with those who go to India, China, and other parts, and take the benefits of medical advice and civilization to the natives. But it is our opinion that the said benefits should be given spontaneously and unconditionally if the native is to be impressed by the life and doctrine of the bestower. We notice a case in a Missionary periodical in which the offer to admit a little Indian girl with a broken leg into a hospital was made conditional on her being taught the Christian religion against the wish of the distracted mother, who wavered several days between maternal affection and dislike to the new doctrine. What the condition of the leg was after this inhuman delay the periodical does not state. We may be sure no doctrine however beautiful could have much weight under such circumstances. The missionary dentist too is on the war path, and after extracting thirty teeth before breakfast for the gentle natives, one remarks, "I had a nice talk with them." Perhaps an empty stomach and an empty tooth socket tend to make the mind more receptive.

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**The Value of a Tooth.**—In this country the value seems to be usually estimated at ten pounds. In India the value seems to vary considerably above and below that amount, for in one case a fitter at Bombay knocked out a Mahomedan plumber's tooth, in the other a medical student and another knocked out two of a Hindu flower-seller's teeth. The Bombay magistrate valued the plumber's tooth at Rs. 15, to be given to the plumber as compensation, whereas the Madras magistrate valued the flower seller's two teeth at Rs. 200. The culprit at Bombay got off well, with no more than a fine of Rs.25 ; each culprit at Madras for the same offence, gets six hours simple imprisonment and a fine of Rs.100, or two months' rigorous imprisonment in default. *Moral.* It is considerably more disastrous to knock out men's teeth in Madras than it is in Bombay !

INTERESTING ARCHÆOLOGICAL DISCOVERIES.—Some fresh and very interesting archæological discoveries are reported from Rome. In the Via Rasella remains of the old road which in the latter epoch of the Republic and the beginning of the Empire, led to the Pincian and Salaria gates, have been revealed. Near the villa of Pope Julius the Second, outside Porta del Popolo, a deep grotto has been discovered, leading to a subterranean piece of water and containing niches evidently intended for statues. But, most rare and interesting find of all, a tomb has been opened up near Rome, showing the skeleton of a woman with a complete set of false teeth, displaying admirable workmanship and wrought out of solid gold. By a curious coincidence, also, a dentist in one of the towns of the State of New York has recently discovered from the examination of the skulls of certain Indians that they must have been well acquainted with the elementary principles of dentistry, for one of the skulls contained several artificial teeth made of flint.

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LIQUID AIR AS A BEVERAGE.—At a public dinner in Paris the other day, the guests were astonished by having liquefied air poured into their champagne glasses. A year ago the Emperor of Germany was offered a glass of liquefied air. He raised the glass in honour of science but refrained from putting it to his lips; the liquefied air in it would have burned them like hot coals. The liquefied air poured into the champagne glass became dispersed in white clouds, and mingled with the surrounding atmosphere. A bottle of air, if liquefied, can bear a transit of sixty hours without volatilsation taking place.

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PHOSSY JAW.—At a philanthropic meeting the other day a thrilling story was told of a young man of twenty six who, after eleven years of work, was stricken down with necrosis of the jaw. It figures, of course, in the damnatory lists prepared against his employers. But it appears that he went to a dentist in the middle of the day, had a tooth extracted, and returned with the open wound to his work in an atmosphere charged with phosphorus. If his masters had been hard men, they might justly have told him that his trouble was of his own making. Instead of that, they have kept him on at full pay for eighteen months and supplied him with medical attendance. We do not quote their behaviour as exceptionally generous—only to show that before they are denounced in Jerusalem Chambers, or other appropriate places, it may be as well to ascertain the truth.

THE ABUSE OF FALSE TEETH.—It is affirmed that the dentist's ministrations are not an unmixed benefit in that the presence of a powerful mechanical cutting and chewing apparatus in elderly mouths is very apt to lead to the eating of too much and unsuitable food. More meat, for instance, will be taken than would be the case had it to be masticated with worn or defective teeth or toothless gums. The teeth are those of early youth, the stomach may be fifty, sixty, or seventy years old, and there is thus a lack of balance which must lead to trouble. The stomach should also be renewed, and that would lead to the necessity for the renewal of some other vital organ ; in short, there would have to be an entire rebuilding upon modern and scientific principles.

EDINBURGH DENTAL HOSPITAL AND SCHOOL.—The summer meeting and presentation of prizes in connection with this institution took place recently at 31 Chambers Street. Sir John Batty Tuke presided. The twentieth annual report to the directors was submitted by Mr. W. B. Macleod, the Dean. It stated that the school was maintaining its position, the number who entered during the year being 22. The clinical side of the Dental Hospital was keeping pace with the advanced practice of the times. The number of ordinary cases treated in the hospital during the year was 7392, compared with 6075 for 1896-97. The number of cases treated surgically also showed an increase, while the increase in the cases treated under anæsthetics was most marked. The report recorded with regret the retirement of Mr. Andrew Wilson, lecturer in dental anatomy, who had been succeeded by Dr. Guy. The number of students at present on the roll was 46. After the adoption of the report, which was moved by Mr. D. Hepburn, and seconded by Mr. G. W. Watson, the Chairman, in presenting the prizes to the successful students, congratulated the dental profession on the appointment of a registered dentist on the General Medical Council, which he thought was a mere act of justice. Another matter for congratulation was, he thought, the settling of a dental curriculum by the Council. He freely admitted that he was not at one with the majority of the Council on many points, because he thought they insisted upon the study and examination of certain subjects to too great an extent. He thought, for instance, that eighteen months of anatomy, twelve months of dissection, and six months of systematic classes was too much to ask of a student who was studying for a profession which dealt with but a limited part of the body, and that it was an unnecessary amount of labour. He took it to be very much the same as studies which were imposed on the poor medical student, some of which were promptly forgotten as soon as the examination was passed. Still he fully admitted the strong necessity that a truly scientific education for the dentist was necessary, and perhaps, after all, the General Medical Council was right in insisting upon a course of study which would induce scientific methods of thought. Addressing the students, he thought many a man injured himself by working too hard during his student course. He (Sir John) held that if a man worked two or three hours at night after having attended his course of lectures during the day, he had done as much as the average man was able for, and, further, he thought these labours should only be conducted through five days in every week, which would leave the student plenty of time to maintain his bodily strength. On the motion of Dr. Jamieson, the congratulations of the meeting were passed to the chairman on his recent knighthood, and a vote of thanks to him for presiding was also accorded.

Iodine Tincture.—The following is recommended for periostitis. Iodine crystals are dissolved in absolute alcohol until completely saturated. A mixture is then made of a third of this solution, a third of aconite tincture, and a third of chloroform.

Increase of Cancer in New Zealand.—The general opinion that cancer is increasing at a rapid rate in England, and that no sophistry can upset the mournful augmenting statistics of its mortality in the annual returns of the Registrar General, lends additional interest to the statement that the disease is also unmistakably increasing in New Zealand. Dr. Fell deals with this matter in the presidential address which he lately delivered before the New Zealand Branch of the British Medical Association. In the course of his remarks he showed that the disease at one time—comparatively recently—was quite insignificant as a death cause, but lately it has assumed a prominent position in this regard, and that the returns show the annual mortality rate is rapidly augmenting. His figures go to prove that the increase was chiefly apparent among men, and he attributed this to the fact that in men the situation is generally less favourable for treatment by operative measures than is the case in women. It is of interest to note that Dr. Fell's experience lends no support to the theory that cancer is a disease whose development is excited by low-lying and damp localities.

SPORADIC THEORY OF CANCER.—Monsieur Bosc, on the contrary, says it is a known fact that cancer was especially frequent in country districts, in wooded and damp places, where the sporozoa found the most favourable conditions for their development, and where the insects were everywhere present, on the dress, the skin, &c. An insect crushed in the immediate neighbourhood of an excoriation constituted a danger. Cancer being of parasitic origin, should be considered as contagious as soon as it became ulcerated. The experiments of Moran proved the possibility of the transmission of cancer by bugs. Hence the prophylactic rules : remove from human habitation those animals who would be contaminated with sporozoa, improve the sanitary condition of country dwelling houses, reject from food or cook thoroughly any animals containing spores, wash with care all vegetables eaten raw, and consider ulcerated cancer as contagious. He had practised a large number of inoculations of cancer from man to animals, and in nearly every case the malady was reproduced.

WHAT'S IN A NAME.—"What's the matter with him, Doctor?" asked the worried father. The young physician took another look at the boy's tongue, felt his pulse again, noted his temperature, and proceeded to pour out some medicine. "I've forgotten the technical name for it," he replied, "but it ends in 'itis.' I'll fetch him out of it all right."

WAR AND DENTAL CARIES.—A writer in the American Dental Weekly remarks that neurosis disappears in times of great national excitement, therefore "if dental caries is largely the result of neurotic influences, as many believe, we may natuaally expect a temporary suspension of the ravages of decay pending the Hispano-American war." If the Americans are nervous, what must the Spaniards be?

# Abstracts of British & Foreign Journals

## ALVEOLAR PYORRHEA.

By Dr. G. H. Thompson, of Honeoye Falls.

I will refer briefly to the etiology and treatment of alveolar pyorrhea. In no disease of the oral cavity has the scientific research of the past few years produced more beneficial results. It is but a short time since all cases of loosened teeth with a discharge of pus from the gingival border were grouped under one class and considered due to local causes. Now we look farther, and endeavour to trace to their fountain-head the various symptoms presenting themselves. In some cases this is a comparatively easy matter; in others it requires the most painstaking and exhaustive examinations.

We find two distinct forms of the disease: the one local, taking its origin in the saliva, the other systemic, due to some constitutional derangement.

In the first form we find the exciting cause in a deposition of calcium phosphate and carbonate around the gingival border. This deposition gradually accumulates and infiltrates itself into the gum tissue and pericemental membrane, causing inflammation and subsequent discharge of pus. Our treatment of this form consists in, first, the thorough removal of all deposits. To accomplish this we should employ suitable instruments, both for the hand and the engine, and taking one tooth at a time proceed carefully, avoiding the laceration of the surrounding tissues as much as possible. By passing trichloracetic acid on a piece of orange wood around the deposits, they may be removed much more readily. Where we find pus exuding the pocket should be washed with pyrozone, and then packed with cotton saturated with a suitable antiseptic, and for this purpose listerine acts very well. The patient should be given a mouth-wash for home use, and instructed as to its use.

In the second form we find the symptoms of an entirely different character. Here we find local treatment by the dentist unavailing, unless coupled with an intelligent systemic treatment. In this form of pyorrhea we find the deposits upon the apical portion of the tooth. To distinguish the trouble in this case is sometimes very difficult, and for this reason our diagnosis should be performed with great care. Urinary examinations should be made and oftentimes repeated.

We find from the experiments made under the direction of Dr. C. N. Pierce that the deposits consist of calcic urate, sodic urate, with some calcic phosphate and carbonate ; uric acid is the predominating element of the urates, and its existence shows that it is a precipitate from the blood exudation. We find that the tissues most liable to receive this exudation are the connective tissues, on account of their density and non-vascularity. It is easy to be seen why the pericemental membrane, composed largely of connective tissue, should become the seat of these deposits. The deposits are found upon teeth where there is a faulty articulation, or a tooth in which the pulp has died, and by this means set up an inflammation of the surrounding tissues.

We find two classes of patients suffering from an excess of uric acid in the system. In the one patient we find the excess due to an imperfect oxidation of food products, superinduced by high living and a lack of exercise. Then we find the anemic patient. Here the tissues have become so starved that the system is unable to throw them off in the regular way. In our treatment we should distinguish between these exciting causes. The systemic treatment of the one suffering from an overabundance of tissue-producing material would be quite different from the one where there was a lack of this material. In regard to diet, the first should be restricted to such an amount of nitrogenized food, whether animal or vegetable, as the system can satisfactorily dispose of, having at the same time due regard to nutrition and strength of body. Plenty of exercise is necessary in order that the system may be induced to use up the extra food products in a legitimate way. The second should have a fairly full and nutritious diet. All malt and stimulating liquors should be prohibited. Both classes should drink plenty of water. Alkaline salts, that will cause an elimination of the uric acid from the blood, should be advised. The bitartrate of lithia, introduced to the profession by Dr. E. C. Kirk, acts very happily in this respect. The digestive organs need attention, and for this purpose we should invoke the hearty co-operation of the physician, as no amount of lithia salts will cause an eradication of the trouble.

The local treatment by the dentist would be much the same as in the case where the disease was salivary in its origin.

No matter how permanent we may think our treatment, the trouble may recur. We should warn our patients to return to us on the first reappearance of the symptoms.—*Cosmos.*

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# ROOT FILLING.

By Dr. J. H. WOOLLEY, Chicago.

Dr. Cook says: "There is no question in my mind that desiccation facilitates very materially the disinfection of the teeth. In fact I am inclined to believe that a tooth can be thoroughly disinfected with the root canal drier without antiseptics at all, but as yet I have not experimented sufficiently to say definitely in regard to it. I found when a tooth had been dried or disinfected as well as possible with the heated broach, if a culture of the various mouth bacteria were put in it, that as soon as the culture media in which they were had been used up they became very much attenuated."

There is no other way than by such experiments cited to prove that heat plays an important part in the destruction of micro-organisms, and also the desiccation of pulp-canals previous to being filled.

There are many, I am well aware, who still use cotton and other absorbents to desiccate pulp-canals. There are also some who dehydrate these canals by what they term "substitution"—that is, trying to displace the moisture by winding cotton around a broach, saturating the cotton thus wound with antiseptic oils, and passing this broach up and down into the canal, hoping to remove the moisture by displacement. This I think is misleading, uncertain and an unreliable method of desiccation. A word as regards that ancient method of filling pulp-canals with shreds of cotton. It is claimed by those who practice in this manner they meet with success. To my mind this method is unscientific; for to be absolutely certain of the best results these canals must be sealed up solidly, filled to their entire length, and the apical foramen closed as well, preventing the egress of any micro-organisms that might otherwise find their habitat there.—*Dental Review.*

## MIXING AMALGAM.

By Dr. I. N. Crouse.

It is very essential to have the proper proportion of mercury and amalgam when you commence mixing. Two ways have been suggested for doing this. One is to weigh out the mercury and amalgam and put them in capsules, so many grains of amalgam and so much mercury to go with it. This method is objectionable because too complicated. The other plan is to have a scale with which the assistant can soon learn to weigh out a sufficient amount for the size of cavity. You soon are able to guage accurately the number of grains of amalgam that are required to fill the cavity. Be sure to have enough mercury, so as to mix the amalgam to its proper consistency. All amalgam should be mixed softer than many operators think. Some have their amalgam too dry and they do not stand the stress. An amalgam that will stand a stress of from 350 to 450 pounds, if mixed dry will break at 80 or 100 pounds. The mixing of amalgam is so important that it is much better to have it too wet than too dry. There is also such a thing as wringing it out drier than it should be. If it is too dry it begins to powder and harden before it is in place. I have adopted the method of having it moist, and then take some dry amalgam and incorporate with it.—*Review.*

## TRIGEMINAL NEURALGIA RELIEVED BY TURBINECTOMY.

By Walter G. Spencer.

The patient was a carpenter, æt. 46, who had had good health, and had not suffered in any similar way before. In April, 1897, he was in bed two days with influenza. Some few days afterwards, at 9 a.m., he was suddenly seized with severe pains in his face. The pains first occurred in the lower lip and skin over the left side of the jaw, then on the cheek over the infra-orbital foramen, over the supra-orbita nerve at the back of the eye, and at the back of the nose. He became dazed, and cannot remember his journey home from work ; he is said to have staggered up the street like a drunken man. His memory is also a blank for the next fortnight. He suffered from neuralgia involving all the branches of the fifth nerve, attended by most severe paroxysms of pain, for which his doctor had to give opium and morphine in increasing doses. His colleague, Dr. Allchin, was after three weeks called to a consultation, and he concurred in the treatment by opium and morphine in large doses.

The patient got somewhat better, but on account of the pain could not sleep well at night, nor concentrate his attention on any work. He was much depressed, and opium or morphine was required when the pain became severe. This was his condition in September, after he had been ill five months, and Dr. Allchin then consulted him with a view to some surgical measure. He could not insert a speculum into the left nostril, on account of hyperæsthesia, until he had been given an injection of morphine. The interior of the left nostril showed no definite disease. On touching the interior with the end of a blunt probe, nothing occurred until he touched the anterior part of the left middle turbinal, when a severe paroxysm of pain and itching was set up of the kind from which the patient had been suffering. After the nostril had been treated with cocaine 20 per cent. the middle turbinal could be touched without exciting the above symptoms.

No other lesion was found, in particular there were no signs of antral disease. Some teeth had been removed without affording any relief. He and Dr. Allchin agreed that assuming the neuralgia to have originated from an attack of influenza, it was not unlikely that the neuralgia would in course of time pass off. Therefore they considered that there were then scarcely sufficient indications for surgical treatment of the three roofs of the fifth nerve, or of the Gasserian ganglion. He proposed to try removal of the middle turbinal for much the same reason as a specially tender tooth is extracted in the hope that it may afford relief to trigeminal neuralgia. He therefore excised the middle turbinal, taking away also the anterior end of the inferior turbinal to obtain room. He found nothing abnormal in the tissue removed, and it was not in contact with the septum. From the time of the removal the patient has never had any pain, and has not required any narcotic. He has slept well, recovered his spirits, and has been at his work for three months. He still has, however, at times, itching in the distribution of the terminal ends of the fifth nerve on the face, also at the back of the eye and nose. This annoys him and tempts him to scratch, but does not prevent his work. It is worse in the day, and is quite relieved by lying down, whereas the old pain was worse when lying down. The interior of the left nostril is now hyperæsthetic, so that the patient is easily made to sneeze, but no pain or itching is excited by touching the interior. He has told the patient that this itching will pass off in time.

## DISHONEST DENTISTRY.

When dentistry is dishonest, and that is not rare, it is more dishonest than stealing. Would it not be better for both patient and dentist if the latter were to take surreptitiously from the patient's pocket three dollars than to make a hole in a tooth and fill it for that amount? Not long since we noticed five small fillings in the morsal surface of a molar, for which, no doubt, a liberal fee was collected for each, when one crucial filling would have been better, and would have cost one half of the five fillings. Was it honest? Was not the extra charge for extra fillings stealing? There is hardly another profession in which the patient is so completely at the mercy of the attendant.

We quote from Dr. Burket in the *Western Dental Journal* as follows;

"The practice of crowning teeth is reaching such magnitude that it may well claim our serious attention. Scores of good teeth that might be made serviceable for years by filling are ground down and crowned, till we "lift our hands in holy horror" at the dental offices becoming dental slaughter-houses. I know personally of a case in which a dentist insisted upon crowning four teeth, only two of which had cavities larger than a pinhead, and the cavities in those two were not bad ones. To fill them would have cost but a few dollars; to crown them a number of dollars. Draw your own conclusions as to the dentist's motive. And this kind of work is going on all the time and all over the country. Shame upon the men who will sacrifice humanity for such a selfish motive! Having had the technical training that would enable them to do the right kind of work, they are willing to injure their patients and debase the profession for the sake of gain. Measured by the standard of ethics, they are found wanting. What do we practice dentistry *for* any way? *Just* for the money that is in it, or for the good of humanity? The fact that we must earn our living through our practice does not do away with that other and greater fact that dentistry, as a profession, owes its existence to humanity's needs. When an operator's highest thought in his work is the money he can get out of it, numberless evils edge their way into his practice, almost without his notice, and he begins to degenerate."—*American Dental Weekly.*

## HOW FAR IS THE DENTIST JUSTIFIED IN TREATING ORAL LESIONS?

Dr. Stellwagen in a recent discussion on the substitution of the word "Stomatologist" for "Dentist," said: A stomatologist is a dentist and something more. His education must be somewhat broader, whether he gets it from a medical or dental college. No right-minded man with simply a medical education would feel that he was qualified to practice any specialty of the healing art unless he had the fullest preparation for that specialty. The ophthalmologist goes through special training; the otologist likewise studies in special courses, and so on. Many of us remember when the ophthalmologists were called oculists, and there was no little controversy when they gave up that name and took the new. All these arguments were gone over in those days. These specialists do not display a special sign. Can anyone recall a single case where an ophthalmologist has a sign? I do not see any more reason for a dentist to encourage the carver, painter, or gilder of signs. Most of our profession are familiar with the general elementary principles of the practice of medicine, and with a very little attention to the study many, even those who oppose the change at the present day, would be quite as well, or indeed better, fitted to explore this territory, where no one seems to want to take the responsibility. The regular physician does not have the time or manual training to treat these cases. Dentists do not want to, simply because they are too modest. That is the whole sum and substance of it. The dentists must overcome that modesty, and consider the value and importance to a patient suffering from disease in that neutral territory. These suffering ones need someone who can care for them and open an abscess of the jaw into the mouth and not under the chin! When such an one has to have a superior maxilla removed, particularly has he a right to be saved the scar and the pain of a gash on the outside of the face. The ability to operate through the mouth is not inborn, but by practice comes of a peculiar handcraft or manipulative ability. The dentist has this, and is practising it all the time. If he claims to be a stomatologist, he must not for that reason give up his dental practice. He should keep his *tactus eruditis* by daily application to dental work, and take the other responsibilities. It would not change the practice, but only add to it. A physician, knowing that A, B, C, had studied in that direction and was ready to be consulted in such cases, would only be too glad to relieve himself and send the patient to A, B, C. We do not want to go out and drum up patients. None of you gentlemen care about having a title on your signs that would indicate what you are, because you do not get your practice that way. How many of you would augment your daily round of work by adopting the use of a sign to indicate your calling? We do not want to give up dentistry. We have no disrespect nor disregard for it. We should be more familiar with ailments of the mouth than any one else; we must of necessity be. We are looking into the mouth daily and hourly; there is where we are at home,—more at home than anywhere else. It seems that this labour must come to us if we do our duty; and if we do not, our patients are the sufferers,—greater than they would be if regular dentists took up the cases. Our dental colleges to-day give better instruction in the general principles of medicine than the medical colleges did twenty or thirty years ago. Then a man who graduated in medicine had not as thorough and complete an education in his profession as to-day the graduate of a dental college has in the healing art. There is no reason why the dental college should not give thorough foundation in the principles of medicine and surgery, and most of them do. In the dental colleges students are expected and required to know their anatomy from the foot to the top of the head, to be proficient in medicine in all its branches, except perhaps the finer points of otology, gynecology, and some few specialties.—*Cosmos.*

# THE ACCIDENT TO THE PRINCE OF WALES.

The leg affected is the same one in which many years ago after his severe attack of typhoid fever phlebitis ensued. The accident, as our readers are aware, though troublesome and somewhat tedious in its cure, is fortunately not in any way dangerous to life. It may be interesting to recall its mode of causation. In walking along, sometimes in ascending or descending stairs, the foot slips and the weight of the body forcibly bends the knee; to prevent a fall the quadriceps extensor muscle in the front of the thigh makes a sudden and violent contraction; the strain on the patella, resting as it does on the condyles of the femur, is too great and the bone breaks through the excessive energy of the muscular contraction. Immediately the patella gives way the continued action of the muscle draws the upper fragment away from the lower and an obvious gap is felt between the two pieces. All power to extend the leg is at once lost and the only result of attempts to do so is to increase the distance between the fragments. The fracture always opens into the knee-joint and pain and swelling soon follow from the exudation into the articulation. The difficulties in the way of treatment are many and various and some permanent weakness of the injured joint is not unlikely to result. With care, however, and with time much may be done to ensure a firm union; but whatever treatment be adopted the sufferer must exercise patience if he is desirous of having a limb as strong as before the accident occurred. The fracture is certainly more common in men than in women, probably because it is produced by muscular action; it is almost unknown in children; and it is most frequently met with in the middle period of life, rarely indeed being seen in old age.

The treatment in the Prince of Wales's case will doubtless be the one usually adopted, that is, confidence will be placed in splinting, bandaging, &c.—to secure union in a good position. We understand that the alternative question of operation—i.e., of opening the knee-joint and wiring together the fragments of the patella—has had the fullest and most anxious consideration by the medical attendants, who, after careful weighing of all the circumstances of the case, have decided against it. Lord Lister, who was subsequently called in and whose authority in such matters is indisputable, fully endorsed this view of the matter and the favourable position of the fractured ends of the bone as disclosed on Thursday morning goes far to justify the decision. On that morning at a consultation held at Marlborough House between Lord Lister, Sir William MacCormac, Sir Thomas Smith, and Sir Francis Laking a very careful examination was made of the precise state of the fracture. The treatment carried out so far was found to have greatly improved the position of the fragments at the seat of the fracture, and the progress made is all that can be desired in the time which has elapsed since the injury. Lord Lister expressed himself as very much pleased with the progress made and is perfectly satisfied that the right course of treatment is being adopted.

Sir William MacCormac has handed us the following report for publication:—

"In consequence of the wide-spread interest taken and the sympathy shown for H.R.H. the Prince of Wales in his recent unfortunate mishap, His Royal Highness, with characteristic consideration for the wishes of those who desire authentic information as to the nature of the injury, has sanctioned the following statement: On Monday morning, July 18th, while coming down the spiral staircase at Waddesdon Manor he missed his footing and in the sudden severe effort made to save himself from falling sustained a fracture of the left patella. On examination it was found that the line of fracture was nearly transverse and close to the upper margin of the patella. About one fifth of the bone, somewhat crescentic in shape, was torn away along with the tendinous insertion of the quadriceps extensor and the gap between the fragments amounted to a little more than 2 in. The joint was distended with blood. Means were adopted to immobilise the limb, bring down the upper fragment, and to prevent tilting. This has proved so far successful that upon examination to-day (Thursday) it was found that the interval between the fragments was greatly diminished, not being now more than a quarter of an inch, and the effusion in the joint is lessened considerably. The condition of the illustrious patient is in other respects most satisfactory, and he is bearing the enforced restraint with exemplary patience and good temper."

His Royal Highness will have the sympathy of the profession during the necessary but irksome period of rest to which he will be subjected and their earnest wishes for his speedy recovery.—*Lancet.*

# ANTISEPTICS AND GERMICIDES IN DENTISTRY.

By G. S. Martin, D.D.S., L.D.S., Toronto Junction, Ont.

It has been said by some one that it is therapeutics that makes dentistry a profession. In no other branch of therapeutics is the dentist so interested as in that given as the subject of this essay: "Antiseptics and Germicides." These terms are commonly used without any distinction being made between them, even writers in our journals and text-books failing often to make any difference.

An antiseptic, as I understand the term, is an agent having the property of preserving organic matter from fermentative changes. A germicide, on the other hand, is an agent that destroys micro-organisms or disease germs. For the most part dentists use germicidal medicaments very much oftener than they do antiseptics, because it is their province to deal with pathological conditions. When a practitioner talks of introducing an antiseptic into an abscess or a putrescent pulp, he generally means a germicide. When he bathes his instruments in a solution it is for the purpose of destroying any lurking germs of disease; and when he cleanses his cuspidore it should be with a germicidal disinfectant. This careless way of speaking is all too common among members of our profession and is very much to be deplored.

In a consideration of the agents at our command I would place first on the list, soap and water, being convinced that clean hands, towel, clothes and instruments are the first essentials to aseptic dentistry. The dentist who neglects cleanliness in his personal habits is not likely to value highly the more specific antiseptics, or to obtain desired results when he does use them. The observing patient is not likely to give a dentist credit for aseptic operations whose finger nails are not even mechanically clean. Dr. Taft has said that a thorough sterilization of instruments may be accomplished by the use of soap and water.

Heat is also one of the most useful of germicides, as for example, in the cleansing of instruments by a bath in boiling water or oil.

Looking at the list of drugs which are available as antiseptics and germicides, we are reminded of the words of the wise king of Israel, regarding the making of books, "there is no end." Probably no other problem so absorbs the best thought of our profession as this one, involving, as it does, the treatment of alveolar abscess, root-canals, pyorrhœa, etc., the greatest trials of a dentist's life. Almost every journal we pick up describes some new or old preparation claimed by some enthusiast to be the ideal antiseptic. A recent writer on pyorrhœa alveolaris counted, if I remember rightly, something over one hundred different remedies for that bugbear of dentistry.

In a paper so limited as this, it will be necessary to apply the principle of exclusion to arrive definitely at the drugs we consider permissible. An ideal antiseptic or germicide should not be escharotic, coagulant, toxic or odorous; should not stain the tissues to which it is applied, and should be possessed of the greatest possible germ destroying power.

On consideration, in the light of these specifications, a great many of the old time favourites will be found wanting in one or more points. For example, such drugs as iodoform and creosote, with their terribly persistent odours are scarcely to be tolerated in a modern dental office. The operating room possesses terrors enough for the delicately organized patient, without the odour of such drugs.

Some of these otherwise desirable medicaments are to be avoided on account of their tendency to stain the tissues; as, for example, iodine or oil of cinnamon in the canal of a prominent tooth will cause a stain very awkward to deal with.

While the question of coagulants and non-coagulants has been a much vexed one during the past year, I am inclined to believe that these agents should preferably be non-coagulant.

Carbolic acid is, perhaps, one of the most common drugs to be found in the average dental office. Pure, it is reliable when applied to an ulcerated surface, or in a cavity before filling a tooth of poor quality. Diluted with water or glycerine, it is an efficient wash in cases of fœtid breath from any local cause, such as after extensive extraction. Used one part in twenty of water, it is a reliable bath for instruments. The main objections to its use in the mouth are its odour and its caustic action. The odour may be disguised by the use of oil of cloves.

Carbolic acid, 51 parts, combined with camphor gum, 49 parts, by rubbing in a mortar will give compho-phenique, a remedy which stands to-day one of the most useful in the dentist's cabinet. It is one of the best dressings for root canals, abscessss, etc., and will prevent soreness of separating teeth with cotton. In fact, it has so many uses as to call forth from Professor Flagg, of Philadelphia, the statement that it is "the most remarkable medicament which has ever been offered in connection with dental therapeutics."

Boric acid is an antiseptic possessing very great merit in diseased conditions of the mucous membrane, and after the extraction of a number of teeth. A combination of borax and boric acid, to which some one has given the name boracine, is not caustic, toxic, or irritating, and is tasteless and odourless. A 16 per cent. solution in water has proved excellent in treating abscess of the antrum.

The old time favourite creosote has, in my practice, given place to less pungent drugs. The only place I ever use it is in combination with tannic acid in cases where I cannot remove all the fibres of a pulp, and even here guiacol is to be preferred.

The essential oils are valuable where stronger and more irritating agents are not necessary, and because their action is more enduring than watery forms of antiseptics. The most commonly used are cloves, cajeput, cinnamon, eucalyptol and wintergreen.

Bichlorid of mercury is, in spite of the sneers of the men who call it "beg-bug poison," still, perhaps, without a peer as a germicide. The offensive smell may be overcome by the use of a little rosewater. Use 1 part in 1,000 parts of water, it is the best bath for instruments that can be used. Dr. W. D. Miller, after his experiments, placed it at two hundred times stronger than pure carbolic acid, and advises its use even in 2 per cent. solution in cavities before filling. Combined with peroxide of hydrogen its use is indicated in abscess and pyorrhœa. The objections urged against the bichlorid are its poisonous nature, its smell and its tendency to change chemically. The dilute form in which it is used should not, however, result in any harm, and if prepared with ammonia chloride a solution may be made at any time required.

Thymol is a favourite substitute for creosote and carbolic acid, having, according to most authorities, equal power as an antiseptic without the unpleasant smell. Combined with glycerol it makes a most effective treatment for putrescent conditions of pulps or in any suppurating condition found in the mouth.

One of the most valuable remedies in dental medicine is hydrogen peroxid. Apart from any chemical action on diseased tissues, its purely mechanical services in cleansing by effervescence in contact with pus is of great value to the dentist. Professor Miller places it next to bichlorid in the list of antiseptics. One great point in its favour is the fact that it may be used without fear, as it is harmless to healthy tissues. It should not be injected into an abscess cavity from which there is not plenty of room for the escape of the gases evolved.

Lately, in the treatment of putrescent conditions I have pinned my faith to peroxide of sodium. Dr. Kirk says of this article: "Sodium peroxid is the chemical analogy of the well-known hydrogen peroxid, with several advantges. It is a white solid, strongly alkaline and caustic. It is easily maintained by keeping it from the air, and the solution may be made at any time. It contains thirteen times as much available oxygen as the $H_2O$ of commerce, which can be prepared from it for immediate use by adding to it any dilute acid in proper proportion.—*Dominion Dental Journal.*

## PREPARATION AND APPLICATION OF NERVE PASTE.

The following is said by Dr. Withold Linderman to be an excellent nerve paste:

With Kirk's arsenious paste (with a slight modification) one may prepare an excellent quality, by extremely finely triturating, in a porcelain mortar, arsenious acid (two parts), which is difficult to pulverize, with one part of pumice and a little carbolic acid, in such a manner that even with a 150-magnifying power no arsenic crystals can be distinguished; thereupon are triturated with the mass, two parts of cocain and one part of menthol; other additions are superfluous. A very small quantity of this paste is laid upon a pellet of cotton the size of a pin's head, and this plug is applied directly upon the exposed pulp. A temporary closure of the crown cavity with sandarac or mastic solution, however, requires a little knack.

In order to avoid the inclosure of the paste and prevention of its action by the resinous solution, the cotton soaked with the resin should never be laid directly upon the arsenious paste; the two plugs should always be kept separate by means of a pledget of cotton moistened with water. The action of the arsenic will then be undisturbed, and the hardened resin will not exercise any pressure upon the pulp. At the expiration of twenty-four hours the pulp, in most cases, will be so void of sensibility that it can be partly removed; otherwise, the cauterization should be repeated.—*American Weekly.*

## AMALGAM.

### A Discussion in the Alabama Society.

Dr. R. B. Adair, in *Dental Weekly*, advocates the filling of the teeth—posterior to the first bicuspid—with amalgam. The observance of this practice insuring the saving of more teeth and conserving the strength and time of the operator.

The disrepute in which amalgam is held by some, he says, is largely caused by the hasty and slovenly manner of its introduction. If the same preparation ot cavities, and careful manipulation were observed as when gold is used, the essayist predicted results that would challenge the admiration and endorsement of even the most partisan gold man.

Dr. Brosius.—Too large pieces of amalgam should not be placed in a cavity. The first piece in a large cavity should be quite soft, and the successive pieces should be harder as the filling grows to completion, finishing with that which is quite hard. This makes a filling in which the mercury is more thoroughly diffused throughout the mass.

Dr. Rosser.—In the first years of his practice he considered that in proportion as he used amalgam the more harm he was doing his patients. Now he is sure his patients would have been better served if he had used more amalgam. Cavities for amalgam should be prepared with as much care as if gold were to be used. Lack of carefulness in detail is the cause of many failures. Each filling should be finished at a second setting. Be careful about overlapping edges. Cement should be used as a base in all large cavities. If two approximate fillings are to be made, put in one at a time and finish it before filling the other.

Dr. Jewett—Get it out of the patient's mind that because you are using amalgam it must be a cheap filling. Show them that it requires skill and judgment to make a good amalgam filling. The cheap John idea is what does the damage in many instances. It is not an oxide that forms on it, but a sulphide and that blackens it.

Dr. Chappel—I am an advocate of amalgam, but care must be taken in both the preparation of the cavity and the introduction of the filling. The rotary motion for packing is not so good as the direct pressure.

Dr. Frank Smith.—Amalgam has been a puzzle to me. I practised ten years before using it. Too much of it is used. The best results are to be had by using it as a veneer over cement or tin foil. Fill a cavity nearly full with tin and finish with amalgam, which gives a harder surface than tin alone.

Dr. Browne uses a matrix of mica, which is left in till the final finish.

Dr. W. E. Walker.—The matrix of Dr. Browne will not do. Too much overhanging amalgam will be left to be finished off. It is more difficult to finish amalgam at the cervical margin than gold. The best matrix is made of German silver bent to the contour and adapted well at the cervix. Two wedges, one from labial and one from the inner side can be pressed in to hold the matrix right against the wall. The double wedges can be easily removed.—*Dental Weekly*.

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No Failures in Dead Teeth Treatment.—Dr. L. C. De Roy's treatment is as follows: Wash out the cavity thoroughly with warm water, to remove all debris. Inject peroxide hydrogen liberally, until all signs of the presence of pus have disappeared, and pack the cavity with iodoform gauze. Adding two drops of the oil of cloves mixed with vaseline renders the iodoform nearly odorless. This treatment should be repeated every twenty-four hours until the pus cavity seems perfectly clean. This can be determined by the injection of peroxide hydrogen, when a final dressing can be left in the cavity and it will heal without further treatment.

He has a record of one hundred cases treated in this manner without a single failure, so he says.

# A CASE OF ALVEOLAR ABSCESS; DEATH FROM PYÆMIA IN EIGHT DAYS; NECROPSY.

Under the care of Dr. F. WILLCOCKS.

Pyæmia arising from suppuration in connexion with a tooth is probably less rare than is usually thought, as there is great chance that the alveolar suppuration may be overlooked in many cases. When a septic clotting has been started in the veins of the part it may spread in several directions. The case below and the one quoted by Dr. Bolton in his remarks illustrate what is perhaps the most usual direction for it to take, but it is by no means rare for the septic phlebitis to extend from the facial vein into the buccal vein and so into the pterygoid plexus of veins, whence it passes into the cranium through the foramen ovale, and so affects the cavernous sinus. In this way are to be explained the cases in which severe cerebral symptoms arise early. For the notes of the case we are indebted to Dr. Charles Bolton, senior resident medical officer.

The patient was a boy, aged four years, who was taken to the Evelina Hospital for Sick Children at 8 p.m. on April 25th, 1898, on account of "pain in the sides." The mother stated that with the exception of an attack of measles from which he suffered in last December the child had had no previous illness, that for many weeks she had noticed that his teeth were "going very bad," but she took no notice of it as "bad teeth were so common," and that he had made no complaint and had been perfectly well until the evening of April 20th, when he complained of "toothache." His face was a little swollen on the right side on the next day, and a medical man who was sent for said that patient had a gumboil and ordered poultices. On the 22nd his mother took him to a hospital as he seemed to be getting stupid, and here she was told that he had a gumboil and was given some medicine. The child was much worse on the following day and complained of pain in the sides, and another medical man who was called in said that he had pleurisy and ordered poultices to be applied to his chest. He remained in the same condition until he was taken to the Evelina Hospital on the above-mentioned date. When the child was admitted he was drowsy and fretful; the skin was hot and dry and the temperature was 104·6° F. There was a hard, tender, non-fluctuating swelling with an indefinite outline fixed to the right side of the lower jaw in the molar region; the skin over it was hotter than the skin on the other side was, but it was not red, and several distended veins were seen over the surface. There were a few enlarged glands at the angle of the jaw, but nothing else abnormal could be felt in the neck. The breath was extremely offensive and the tongue was coated with a greyish brown fur. The crowns of several teeth were completely decayed and the second lower right temporary molar was carious and loose, a brownish purulent discharge oozing from its socket and the surrounding gum and the adjacent part of the floor of the mouth being ulcerated. The teeth and gums were partly covered with a dark coloured, cheesy material which had a foul odour. The throat was a little congested and was covered with tenacious mucus. With the exception of a few rhonchi on both sides there were no physical signs in the chest. The spleen was easily felt about two fingers' breadth below the left costal margin and the urine contained a trace of albumin. The loose molar was extracted and a quantity of thick brown pus escaped. The teeth and gums were thoroughly cleansed and the mouth and abscess cavity were irrigated every four hours with sanitas lotion. On the 27th the right eyelids were œdematous and the superficial veins were much more distinct than they had been before. The right external jugular vein could be distinctly felt and rolled under the finger; the internal jugular was apparently normal. There was a free discharge of thin offensive fluid from the mouth and creolin lotion (1 in 1000) was substituted for the sanitas on account of the smell. Rhonchi and râles could be heard on both sides of the chest, and the skin was a little jaundiced; the liver could not be felt. The general condition was the same as it had been before; the temperature ranged between 104° and 106°, once or twice rising to 107° and falling from 3° to 4° after each tepid sponging; there were no rigors. Mr. Makins was asked to see the case. He exposed the external jugular vein and found it to be yellow in colour and full of pus. He ligatured it below at its junction with the subclavian and above almost as high up as the angle of the jaw and cut out the intervening portion. The internal jugular was next examined and the blood in it was found to be fluid. The wound was then closed as the child's condition was very bad. The patient died on the following day (the 28th) at 3 p.m.

*Necropsy.*—At the post-mortem examination the external swelling was found to be chiefly composed of glands matted together. A part of the inner surface of the lower jaw was lying bare in the abscess cavity and the adjacent portion of the floor of the mouth was infiltrated with pus and was in a sloughing condition. The veins on the right side of the neck were dissected out. The lingual, the ranine, and the lower part of the facial vein, together with the common facial and the anterior and posterior divisions of the tempero-maxillary vein, were full of pus, the external jugular having been removed at the operation. The clotting extended for some distance up the temporo-maxillary and facial veins and also along the branches, some branches of the facial being full of pus. The clot in the internal jugular was beginning to break down and extended for about a quarter of an inch above and below the entrance of the common facial. There were several pyæmic abscesses in both lungs and the spleen was enlarged and soft. There were no abscesses in the other organs.

*Remarks by* Dr. Bolton.—There are several points worthy of note in the above case. 1. The first point I will consider is the course taken by the blood-clot. This depends upon the fact that in an alveolar abscess in this situation the probable source of infection is through branches of the facial vein, the veins of the tongue being infected in this particular case on account of the extensive involvement of the floor of the mouth. There was a direct line of pus from the facial into the tempero-maxillary and thence into the external jugular vein, the clot in the internal jugular being more recent, although the common facial vein runs directly into the internal jugular. The probable explanation of this is that the clot in passing down the facial vein towards the internal jugular blocked up the lower end of the anterior division of the tempero-maxillary vein, and the volume of blood in the latter vein, being small in comparison with that in the internal jugular, easily clotted, and so the infection was carried to the external jugular, whereas the large volume of blood flowing in the internal jugular would at first sweep off any clots projecting from the common facial into its lumen and thus clotting in the internal jugular would be delayed. Pyæmia is a very rare result of alveolar abscess; however, many cases have been recorded, and Mr. Pedley in his book on Diseases of Children's Teeth quotes one which was published in the *Lancet* by Mr. Arbuthnot Lane, and which bears a striking resemblance to this case. Mr. Lane's patient was a boy, aged four years, whose illness began with toothache and swelling in connexion with the second left lower temporary molar about a week before admission into hospital. He had jaundice, rigors, and an enlarged liver. The most interesting point is that in Mr. Lane's case the course of the clotting has apparently been exactly the same as described above, the external jugular vein being thrombosed to within half an inch of its lower end and the internal jugular only for a very slight distance. Mr. Lane cut out the external jugular and facial veins and tied the internal jugular above and below the entrance of the common facial with the result that the jaundice and rigors disappeared; however, the child died and at the necropsy abscesses were found in the lungs and liver which had been formed before the operation probably by clots projecting from the common facial into the internal jugular and washed off by the blood-stream. In these cases the clotting must reach the internal jugular very soon after it reaches the temporo-maxillary, hence the earlier the internal jugular is ligatured the greater is the chance of success, and when the external jugular is found to be thrombosed it is probably too late to save the patient by operative interference. The proper treatment in such cases obviously is to examine the facial vein as early as possible and not to wait until there are signs of thrombosis of the external or internal jugular veins. 2. The next point to which I wish to refer is the inattention which is paid to children's teeth not only by the parents but even by members of the medical profession. Of this there are numerous examples daily in the Evelina Hospital; it is an extremely common thing to see children with the majority of their teeth carious, with pus oozing alongside the crowns of two or three, or several minute abscesses pointing through the gum, or probably three or four fangs of temporary teeth protruding through the gum and causing ulceration of the cheek owing to their non-absorption as a result of caries of the crown. This condition of things is totally disregarded and the teeth are never examined because the children do not complain of pain. This brings me to the third point which this case illustrates. 3. Namely, that it is quite the rule for these children never to have any pain at all. This point is not paid much attention to, but every one can verify it for himself, and he will then be surprised at the amount of destruction which can take place in children's teeth without the occurrence of any pain whatever. 4. In reference to the treatment of alveolar abscess in connection with temporary teeth there is no doubt that in all cases the proper thing is to extract the tooth at once and not either to apply poultices or to give medicine. The abscess then drains through the socket, the cause of the abscess is removed, and the permanent tooth which lies under the temporary one will probably be saved, which it cannot be if the abscess is allowed to run its course unopened. 5. Another point illustrated here is the fact that there may be most extensive suppuration within the veins and secondary abscesses without any rigors or large variations of temperature. 6. Lastly, the value of creolin in this case as a deodoriser may perhaps deserve mention. At the necropsy, which took place twenty-four hours after death, the mouth smelt very strongly of that drug.—*Lancet.*

## INTERDENTAL SPACES.

Whatever may be said of permanent separation in the front teeth, an operation upon the posterior teeth, which leaves the interdental spaces exposed to pressure in mastication, if the same is so situated as to become impacted with food, is a failure. The writer spent some few years of his humble life suffering from this very thing, and therefore has a feeling acquaintance with the subject. A second bicuspid and first molar, each having a cavity approximate to the other, had been filled "flat," and there is no need of my trying to describe the discomfort this condition engendered. Suffice it to say, I never did enjoy a meal, especially if beef was on the table, so long as it lasted. In the course of time these teeth were separated, and each contoured with amalgam, so that their original shape was restored. This last operation was performed in 1889, and to this day I have experienced no discomfort from those teeth. The proper remedy lies in judicously contouring the teeth to their original shape. In some cases where there is much loss of structure this is best done with crowns; in other cases with gold fillings, and in still others with amalgam; the judgment of the operator must discriminate. But while we have seen some very good articles advocating such a course, I do not think it good practice to bridge amalgam filling from one tooth to another. Of course this would prevent food from being impacted in the spaces as above written, but it is barely possible that the fillings would save the teeth into which they have been anchored, being subjected to the heavy strain which would necessarily fall upon either tooth in mastication.

This letter does not purport to give any new ideas, but it is often the application of things that are already known which marks the success of the professional man.—*Dental Weekly.*

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## COHESIVE *v.* NON-COHESIVE FILLINGS.

By Dr. A. G. Smith, Peori, Ill.

We are all familiar with the soft gold fillings in crowns and buccal surfaces of short yellow molars, that have been in, so our patients tell us (and I have not the slightest doubt that they speak truly), "ever since s'teen years before old Dr. So-and-so died, who was a fine dentist, but awfully rough." These fillings have done great service, and all honour to the men who put them in; but how about it when we come to proximal cavities in the bicuspids?

There are few practising dentists who have not had to remove gold fillings from these cavities; and in so doing, how often do we take out of the grinding surface a hard nugget of cohesive gold, and then from the cervical third of the cavity dig out a mass of soft gold that seems to be somehow disintegrated and like so much yellow sausage. Again, how often have we seen soft gold fillings that are battered out of shape, rough, uneven, pitted, discoloured, and a disfigurement to the tooth. The cohesive filling is more dense, is harder and wears longer, is susceptible of and will retain a higher finish than soft gold ever can.

The objections to the use of cohesive gold are chiefly its difficulty of manipulation, length of time required for its insertion, necessity of keeping the tooth perfectly dry during the entire operation, the alleged difficulty of making a good adaptation to the cavity walls, expense and discomfort to the patient. Were it not for these few objections, cohesive gold would be almost the only material used for filling teeth to-day.

Unquestionably it often is a difficult matter to start a filling with cohesive gold, that is to get the first few pieces firmly anchored in place. Especially is this true if we try to make the start with foil and the cavity happens to be one where we can see nothing except in the mirror. Happily we have cylinders, mat and sponge gold to help us out of this difficulty. These are all true forms of cohesive gold, but owing to the peculiar properties imparted by the processes of their manufacture, can be gently thrust into the cavity where we can coax them into undercuts and retaining grooves and condense them at our leisure. I use very little mat gold, and never depend on it for any anchorage strength, simply a very tiny piece at the start for the purpose of saving time. Any filling may be started with cohesive foil, if our skill and patience are adequate.—*Dental Brief.*

## THE DETERMINATION OF SEX.

Perhaps no medical question of the last twelve months has excited so much interest among a considerable section of the public as the newspaper announcement that Dr. Schenk of Vienna had discovered a method of predetermining the sex of children. Under any circumstances such a statement could hardly fail to attract attention and in the present instance additional piquancy was imparted by the suggestion that some noble family or other had been enabled by this discovery to obtain that desideratum, a male heir. Dr. Schenk, who is Professor of Embryology in Vienna University, has now explained his views to the world in a volume of moderate size, an English edition of which is published simultaneously with the German original. After a sketch of various theories of sex production which have been held at different periods both ancient and modern he gives a qualified adhesion to that of cross heredity, according to which the offspring tends to be of the opposite sex to that of the more vigorous of the two parents, so that if the mother in her way is of greater procreative capacity than the father in his the offspring will tend to be of the male sex. The nutrition of the mother is, according to Dr. Schenk, the principal factor in bringing about this result. In order that she may have male progeny her food must not only be of a kind calculated to maintain her in health and strength, but she must in addition be able to assimilate it so completely that her urine yields no sugar when submitted to the sensitive phenylhydrazin test On the other hand, women whose urine contains even minute traces of sugar are more likely to have daughters than sons; but they are able not unfrequently to reverse this tendency if they are willing for some months before conception to exclude carbohydrates from their food as much as possible, confining themselves mainly to nitrogenous and fatty diet. The frivolous minded will welcome these views as a complete solution of the momentous question, What to do with our girls? but, speaking seriously, the method is not one for universal application and expectant couples will do well not to be over-sanguine. Abstract arguments can serve no useful purpose, while, on the other hand, the theory may be easily tested by the average of a moderate number of cases.—*Lancet.*

## ROOT-CANAL REAMERS.

By J. Leon Williams, D.D.S.

I have no unique method of operating, so far as I know. For several years I have noticed a tendency to use fewer instruments. In other words, a tendency towards simplicity and directness in methods of operating. In the preparation of cavities, and especially in the opening up of cavities which involve the treatment of pulp canals, I cut much more freely than formerly. I do not like attempting to shoot around corners or to chase bacteria up blind alleys. I want to see just what I am doing, and this leads me to speak of an instrument which I really ought to have described before. Several years ago it occurred to me that the instruments for opening pulp canals were about as badly devised for their work as they could be. They are expensive, inefficient when new, and rapidly worn out—when not broken off in pulp canals. My cogitation on the subject resulted in this instrument. It is, as you see, a modification of the three-sided reamer, but the modification is much the most important feature of the tool. Each of the three sides is deeply grooved. The result of this grooving is twofold. It makes an instrument which is as easily sharpened as an excavator, and which can, therefore, be kept in the finest cutting condition until worn out. (As to their durability, I can say that I am still using instruments which were made for me three years ago.) The grooves also render the tool self-clearing. It never clogs, it cuts very rapidly, and there is not the slightest danger of forcing it through the side or end of the root. It leaves roots which have a curvature at the end in the best possible condition for treatment with sulphuric acid or by any other method, i.e., with a large cone-shaped opening giving an abundance of room for working and seeing. It cuts away more of the infected dentine with less destruction of the root than can be accomplished by the use of any other instrument. And, finally, it leaves the root canal exactly the shape required for the strongest and best form of pin for crown work—a pin which is largest and strongest where it joins the crown and which gradually tapers to a fine point in the end of the root. Crowns with a pin of this shape are much less liable to get loose, because the pin can be made much longer. Also, one never finds an air cushion beneath a pin of this shape when cementing a crown in place. From every point of view, therefore, I regard this as much the most valuable instrument for opening pulp canals that I have ever used.--*Items of Interest.*

## CARE IN ENLARGING ROOT-CANAL.

By A. M. Tutt.

If we are to use the crown with the post, we should be careful of two things: First, in enlarging the canal, the enlargement should be carried toward the palatal portion, for in the anterior teeth, at least, the direction of the force against them is outward, and if the anterior segment of the root be weakened it is liable to fracture; second, the post should be as long as possible and flattened, because a round post is needlessly strong in its transverse diameter, and not strong enough, unless too large, in its anterio-posterior diameter.—*Dental Digest*

## DENTISTS FOR THE AMERICAN NAVY.

Mr. Otey, the representative of Virginia, has introduced a Bill into the United States Congress providing for the appointment of a brigade dentist for each brigade, with the rank of major, and one for each regiment, with the title of captain.

# Dental News.

## THE DENTAL HOSPITAL OF LONDON.

A most successful Conversazione was held in connection with this School, at the Royal Institute Galleries, Prince's Hall, Piccadilly, on the 19th ult. There was the usual reception by members of the Staff at 8 o'clock, and half-an-hour later the prizes were distributed by the Right Hon. Lord Ludlow.

The Dean, Mr. Morton Smale, in giving a short sketch of the year's work, was able to show that the entries at the School and the results at Examination were better than for many years past. He alluded to the increased opportunities for study afforded to the students by the Museum now formed under the superintendence of Mr. Gabell, and also mentioned with regret that Mr. Storer Bennett, who had served the School in many capacities for some twenty years, now found himself obliged to resign his position as Surgeon.

The following was the List of Prize Winners :—

Saunders Scholarship, Mr. W. H. Thomas. Ash's Prize, Mr. W. H. Thomas.

### CLASS PRIZES.

*Winter Session*, 1897-8.

Metallurgy—1st Prize, Mr. W. H. Thomas. 2nd Prize, Mr. H. D. Williams. Certificate of Honour, Mr. F. R. Bishop.

Dental Mechanics—1st Prize, Mr. W. H. Thomas. 2nd Prize, Mr. H. H. Belsey. Certificate of Honour, Mr. A. G. Payne.

Practical Dental Surgery Prize—Prize, Mr. A. G. Payne. Certificate of Honour, Mr. H. G. Williams.

*Summer Session*, 1898.

Dental Anatomy—1st Prize, Mr. W. H. Thomas. 2nd Prize, Mr. A. G. Payne, Mr. H. G. Williams.

Dental Surgery—1st Prize, Mr. W. H. Thomas. 2nd Prize, Mr. H. H. Belsey. Certificates of Honour, Mr. H. G. Williams, Mr. A. G. Payne, Mr. E. F. Ackery.

Students' Society Prize, Mr. S. C. Smith. President of Students' Society's Prize, Mr. L. F. Barton.

Lord Ludlow, in addressing the audience, referred to the very great improvements made in recent years with respect to Dental matters, and, with respect to the Dentists' Act, thought that although much had been gained by it yet more still could be done.

Mr. Smith Turner proposed and Sir J. Douglas Powell seconded a vote of thanks to his Lordship.

The rest of the evening was spent in listening to a selection of music under the direction of Mr. Herbert Schartau, who had the assistance of Miss Kate Cherry, Miss Lucie Johnstone, Mr. Albert Archdeacon and Mr. Walter Churcher. Many old friends of the Hospital were present, including Sir Edwin and Lady Saunders and Mr. T. Arnold Rogers.

## TOOTH-PASTE DISPUTE.

At Clerkenwell County Court, before Judge Edge, H. Bronnley and Co., Limited, of Danbury-street, soap manufacturers, sued Frank Comer, described as an American dentist, to recover £8, the price of two gross of "Wintergreen tooth-paste," made to defendant's order, and delivered to him some time in 1896.

The Judge—What is "wintergreen?"

Defendant—It is a small American plant with which the paste is flavoured. It is my own recipe, and the plaintiffs were to prepare it.

The plaintiffs' representative gave evidence of the execution of the order and the delivery of the goods.

The defence was that the tooth-paste had not been flavoured according to his directions with wintergreen, but with aniseed. In consequence of this, the Army and Navy Stores, with whom defendant had a contract, returned the paste. The defendant produced a sheet of foolscap closely covered with writing, and desired to make a "brief statement."

Mr. Popham (for plaintiff)—I wish to draw your Honour's attention to the fact that defendant is reading his brief.

The Judge—I know of no rule against it. It is only in the House of Commons that you cannot read a speech.

The defendant amid some amusement in Court, read his statement, the first portion of which was devoted to an account of the advantages of wintergreen tooth-paste.

George Crompton, an engineer, who was called by the defendant, said he had been a patient of the defendant, and bought from him several boxes of the paste flavoured with wintergreen. He knew the taste of wintergreen well, and the sample tube produced had no trace of it.

Plaintiff—You don't know the difference between peppermint and wintergreen. Only experts can tell, and you are only an engineer. (Laughter.)

The Judge—I have possibly endangered my health by tasting both samples, and I confess that I mistook what is said to be wintergreen for peppermint. If experts differ, how am I to decide? I think the defendant must prove the goods are not according to order.

Defendant—Will your Honour order that they shall be submitted to an analyst?

The Judge—You should get your own analyst.

Defendant—Very well, I shall have them analysed.

The further hearing was adjourned till August 3rd.

## THE MATCH-MAKING TRADE.

Mr. Steadman (Tower Hamlets, Stepney) asked the Secretary of State for the Home Department if he could inform the House what steps he was taking to inquire into the deadly use of yellow phosphorus in the match-making trade; and if so, would he report the result of such inquiries at the earliest opportunity.

Sir M. W. Ridley.—The steps taken are, very briefly, these:—Every match factory in the country has been specially visited, and reported on by the factory inspectors; many of them also, so far as the employment of women is concerned, by the lady inspectors. Inquiries are being made through the Foreign Office as to the measures adopted and results obtained in foreign countries. Further, the question is being investigated, on the scientific side, by two distinguished experts—Dr. Oliver and Dr. Thorpe—the former of whom has already visited the chief match factories in France and made a special report; and from the dental point of view by

Dr. George Cunningham, dental surgeon of the London Hospital, who has already made a preliminary report, and whom I propose to send to France to continue his inquiries in the French manufactories. I shall as soon as possible communicate to the House the result of these investigations. —*Times.*

## IRREGULAR MEDICAL AND LEGAL PRACTITIONERS.

In the House of Commons recently, Dr. Farquharson asked the Chancellor of the Exchequer the following question: "Whether, having regard to the fact that a sum of £5000 a year of public money is paid to the Council of the Incorporated Law Society to assist them in purifying the legal profession, he could see his way to make a similar grant to the General Medical Council to enable them to undertake the prosecution of irregular medical practitioners." The Chancellor of the Exchequer said that the sum granted to the Council of the Incorporated Law Society was £2500, and was only a small fraction of the yield from the special duty on solicitors' certificates which went to the Exchequer. No such tax was imposed upon medical practitioners and therefore no question of a similar grant to the General Medical Council arose. Dr. Farquharson must have known that his question would elicit this obvious reply. We hope that he will not be deterred from making further moves in this and other directions towards obtaining for the General Medical Council further powers.—*Lancet.*

## SIR EDWIN SAUNDERS' REMINISCENCES.

Sir Edwin Saunders, the Queen's dentist, in the course of his address before the annual meeting of the British Dental Association, gave some interesting experiences he had had. One of his patients, in the pre-anæsthetic days, did not get as much pain as he expected from a tooth-extraction, and wanted the tooth replaced, so that he could have the operation repeated, and, when Sir Edwin declined, went away a sad and dejected man, feeling he had been defrauded.

When Said Pasha came to this country in the sixties he had toothache, and Sir Edwin was requested to extract the tooth. A patient, to whom he mentioned the fact, did not reassure him when he said "Take care what you are about; he is very impatient, and has already killed two men with his own hands." Sir Edwin was ushered into the presence of the Pasha, whom he found seated, and around him in a circle his Prime Minister, Turkish physician, secretary, French physician, and about twenty men in different uniforms. Sir Edwin took a chair opposite to his Highness, and a slave, gaudily comparisoned, brought him a cigarette and coffee, which he did not wish to have, but the French physician, seated on his left, said, "You must not refuse them; his Highness would be deeply offended." He therefore took them. The Turkish physician knew no English and Sir Edwin knew no Turkish, so he asked the French physician to assist him, because he found from the Pasha's great bulk it would be impossible for him to have one arm against the patient's head and one arm to perform the operation. He asked the French physician to steady the Pasha's head. The physician started, and had a talk with the Turkish physician; the Turkish physician went to the Prime Minister, the difficulty being that there was no man of sufficient rank present to come in contact with his Highness. The difficulty, however, was overcome, and the Pasha behaved very well, but the tumblers of water which had been provided he would not touch, because some dog of a Christian might have drunk out of them. A servant clapped his hands, and the curtain was pulled aside, and there came out two tall, broad, handsome Abyssinian negroes, gorgeously dressed in gold embroidery and scarlet and blue. They came forward and dropped down in the most graceful manner on their knees before his Highness, and inserted a long tube coming from a gold vase into the corner of the patient's mouth, which completed the operation.

Another remarkable patient was Azimullah Khan, an Indian prince whose attitude and voice spoke of high rank; he had the finest set of teeth Sir Edwin ever saw—not so large as the Pasha's, but beautifully formed, small, and pearly. His teeth were going wrong in England, and Sir Edwin urged him to use a brush, but he said his religion would not allow him to use an instrument which was composed of the bristles of an unclean animal, so they gave him wood to polish his teeth with, and thus managed that difficulty.

Jung Bahadur, another Indian prince, had an accident in Paris, and knocked out one of his front teeth. Sir Edwin had to perform an operation on his mouth. He got into very great discredit with people in high station because they told him he had spoiled the appearance of the man. Sir Edwin said it was not so; he had great difficulty in getting the tooth matched.

## APPOINTMENTS.

Mr. R. E. Waller, L.D.S.Eng., has been appointed and is already on his way to the front in the Soudan campaign as dentist to the Anglo-Egyptian soldiers. He has been appointed by special request of General Gatacre.

The last issue of the *London Gazette* contains the announcement of the appointment of Sir William Henry Broadbent, Bart., M.D., F.R.C.P., to be one of Her Majesty's Physicians Extraordinary, in the room of the late Sir Richard Quain.

Mr. W. J. Fisk, L.D.S. Edin., has been appointed Dental Surgeon to the St. Padcras Parochial School at Leavesden.

## Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

*To the Editor of the "British Journal of Dental Science."*

### SMITH'S DENTAL METALLURGY.

Sir,—Mr. Smith is very much mistaken as to the points raised by me being "merely a matter of difference of opinion." The ingots usually rolled by dentists who melt their own scrap, are usually from 2 to 3 oz weight; anyone who has rolled these out with the mills described by Mr. Smith, and those I recommended, will know whether it is a matter of opinion or not. I have known several owners of such mills as Mr.

Smith describes, but all sent their rolling out and used the mills only for thinning backings, &c. With regard to the formation of definite compounds of metals with mercury, this may be the case sometimes when one metal only is amalgamated; the remark "it is not unreasonable to suppose," is one hardly to be expected from a chemist or metallurgist, who should know, and not "suppose." It may also be mentioned that "mercury" cannot be squeezed from an amalgam, what is squeezed out is fluid amalgam. Mr. Smith offers no proof whatever of his statement, nor does he mention a single compound amalgam in which definite compounds occur. With regard to the process given for melting platinum in amalgams, it is not uniformly reliable; the one I gave is so, and it is much the easier method.

Purification of zinc,—Mr. Smith states that the addition of strong hydrochloric acid is "not a desirable experiment to perform." When we consider that this method is well known, and has been in constant practical use for at least 40 years, it can hardly be classed as an "experiment!" The use of dilute acid is dangerous, the excess water forms steam instantly, but the strong acid floats quietly on the metal and takes up the free oxide at once, making the metal as fluid as when first first melted: no other known flux has the same effect. If Mr. Smith had taken the trouble to test my statements before criticising, without attempting to "suppose" anything, it would have saved some trouble.

THOS. FLETCHER.

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## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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# AMALGAM.*

By W R. HUMBY, L.D.S. Eng.

Mr. President and Gentlemen,—For any one engaged in active practice the work of investigating such a vast subject as amalgams must necessarily be fragmentary.

Often, I fear, results obtained are not recorded by dentists; the seeming triviality of such results, and the fear of ridicule deters men who might help.

The value of individual efforts is thus discounted. When their value is overwhelming, as were Mr. Black's, all restraints vanish, and we are astonished that this wealth of information the accumulation of forty years' careful work, is placed at our service in so liberal a spirit.

It seems to me that there are three ways of trying to obtain what we require.

(1) To simply allow the commercial classes to continue to exploit our requirements, and to profess to be able to supply our wants, as in the past.

(2) To trust to the isolated efforts of men in active practice.

(3) That research should be undertaken by united action, with every requisite at hand—a laboratory equipped with metallurgical, physical, and chemical apparatus, and knowledge—so that if there exist in nature elements suitable for

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* Read before the Odontological Society of Great Britain.

our purposes, such elements may be found. The first and second plans to my mind are objectionable, the more rational course and that which would promise sounder results being the third.

Is amalgam necessary? I think so, in the absence of an insoluble cement. Amalgams are, with a single exception, so far as I know, insoluble, and stand the wear and tear of the bite. If an amalgam, in hardening, underwent no serious change of form, and retained a desirable colour, we should be able to avoid the excessively tiresome operations of gold fillings, which cannot be said to resemble the tooth, and are only used because the yellow of the gold is nearer to the more or less yellow tone of the tooth than are the greys or blacks associated with amalgams.

Nineteen-twentieths of the fillings inserted are plastics, either cement alone, or amalgam alone, or the two combined. Now the first, from its solubility, is clearly uselsss for permanent work. The second class of fillings is objectionable; some stain the tooth, all conduct heat and lack adhesive attachment to the tooth substance. Amalgam by itself is being discarded in favour of cement linings with insoluble, unwearable amalgams as external coverings.

When cement was first used as a lining it seemed to control the amalgam plug, preventing the alterations in shape; although a minute change might be detected in an uncemented plug, little or no alteration was to be seen where cement had been used in the average case. In some of the larger plugs the power of the cement to control shrinkage or expansion was not enough, however, and I have had plugs loosened from their cement attachment, and have seen tooth walls broken down where two-thirds or so of the tooth had been restored by cement and amalgam. This fact, together with the objectionable colour of the amalgam used, induced me to interest myself in the question, and besides other materials, I obtained a chemical balance, a micrometer, and made a steel matrix in which to form the plugs to be tested.

Other matters diverted my attention from the subject, and, although I felt very strongly the need of improvement in my amalgam fillings, I put the matter off. Mr. Black's papers were published, and I was ready to test some of his conclusions.

The substitution of maturation by heat for the maturation previously effected by ageing was found to secure uniform tests, abolishing progressive shrinkage.

It is now possible to weigh, melt, reduce to filings and test within a few hours, and know that the same filings tested at any future period will give similar results. Until the cause of uncertainty was discovered, progress was absolutely out of the question. Thus Mr. Black has made and published the very first discovery of any real value relating to the amalgam question.

Mr. Black gives the formulæ for two alloys which he says neither expand nor contract. I selected these for examination :—

| | | | |
|---|---|---|---|
| No. 1 | Silver, 68½ | Tin, 25½ | Gold, 4 |
| | Zinc, 1 | Bismuth, 1 | |
| No. 2 | Silver, 68½ | Tin, 25½ | Gold, 5 |
| | Zinc, 1 | | |

Although weighing was easy, melting was more difficult owing to the lower melting metals burning. After many plans had been tried I succeeded in reducing the total loss to 3.4 grains on a two thousand grain melt. I hope to be able to reduce the loss still further.

The method I adopted was to melt the lower metals under gas engine oil, stirring with wood until the metals were reduced to a fluid state ; remove the button, wash, dry and weigh, when I found that no loss in weight had occurred. The gold and silver were melted in a salamander crucible fitted with an asbestos lid to prevent the flux ejecting the grains of metal during the spitting which precedes the fusion of the flux. When the metals were melted more flux was added until one inch deep over the surface of the metal. The heat was shut off and the melt stirred with a carbon point. While the metal was still melted, the button of tin, &c., was lowered through the flux into the crucible. A small blue flame as of burning zinc was visible and thus the loss of weight occurred.

If the baser metals are allowed to enter the crucible at the melting point of the silver and gold before being reduced to a button, an explosion follows, and, on such occasions, I have lost as much as 10 grains in 2,000 or ½ per cent.

Owing to the expense and delay of determining the nature of the loss by quantitative assay, I have deemed it better to try and exclude loss, if possible, altogether. So much for melting. The button removed, cleansed, dried and weighed, the alloy is reduced by filing to a fine state of division, the particles of steel being removed with a magnet. Mr. Black recommends sifting ; this I did not at first see the need of, but I intend sifting the filings, in future, not to secure uniformity in the filings, but to remove foreign substances which do intrude somehow.

Next, as to annealing. To do this the filings are placed in a test tube and boiled for fifteen minutes in a sterilizer ; when cool, the filings may be mixed with mercury, for use in the mouth or for a test plug. In making my tests I weigh 70 grains of filings and add mercury until the amalgam is of a suitable consistency such as would be used in making a plug for the mouth.

Owing to the large size of the mix, the first incorporation is done by shaking in a test-tube. Mr. Black says the quantity of mercury does not influence the shrinkage or expansion, but does seriously influence the strength of the plug. The packing into the mould should resemble the making of a plug for the mouth. In both cases the softer amalgam works to the surface; it is removed and replaced by dryer, until when the surface is pretty hard, it is smoothed off level, the matrix opened, the plug placed in the micrometer, and about three or four minutes allowed for equalising the temperature of the micrometer and the plug. The time is then taken and the position of the needle recorded. I usually record the movements for one hour at intervals of a quarter ef an hour, then set it aside and record after a lapse of twelve hours or so. I have kept a plug in the micrometer for three weeks, but in the case of Black's Nos. 1 and 2 formulæ, after the initial changes (first contraction, followed by expansion) which were over within the first hour, I could not detect the slightest alteration.

The matrix you can see for yourselves. I made it a mathematical inch in length, under the belief that I should use a micrometer marked to the ten-thousandths of an inch, but I could only obtain one, marked to thousandths, except by special order, so to prevent delay I use the one you see which is marked to thousandths of the inch and to the hundredths of a millimetre. I use divisions of the micrometer scale as ruled to the hundredths of a millemetre as points and add on any excess as a half, third or quarter, as the case may be. I have ordered an instrument marked to ten-thousandths. I do not quite understand Mr. Black's matrices, which seem to consist of steel tubes of a given length into which the amalgam is packed, the plug remaining in the tube until the test is completed. This tends to control the movements, not allowing the actual natural fluctuations to be recorded, so that in point of delicacy his test results in showing no movement on a ten thousandths scale, while mine has shown quite appreciable changes on a scale a fourth as fine.

As I cannot replace my plugs in the micrometer after removal without some change in position, I keep the plug in place until I believe all changes have occurred. In order to appreciate fully the differences in the various alloys in use, I have made some tests to show the magnitude of some of the alterations, which no amount of cementing into the tooth will control.

There still remain many matters which I have purposely omitted in order to keep this communication within reasonable limits.

I will only detain you with two; first, the need, especially in large cavities, of keeping the tooth wet during the shaping of the cavity, and only drying the surface just prior to the insertion of the filling. The shrinkage of a lower bicuspid of a lad aged 14 was, lengthwise, four points—from a state of normal wetness to that of perfect dryness. Thus by drying the tooth substance throughout its coronal portion, we are contributing to an inevitable alteration of form when the tooth regains its normal volume.

Second, as to colour. This I cannot certify to, as there is only one reliable test, that is, in the mouth, after an extended trial in practice; but I have been, and am working in order to obtain a reliable white alloy, and feel some hopes at last of securing one; but, as Rudyard Kipling says, "that is another story."

## Alterations in Shape of Test Plugs, each Point = Hundredth of a Millimetre.

### (1) *Pearce's Amalgam.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Shrank | 2½ | in | 1st | quarter | of | an | hour. |
| „ | 1½ | „ | 2nd | „ | „ | „ | |
| „ | ⅔ | „ | 3rd | „ | „ | „ | |
| „ | 1 | „ | 4th | „ | „ | „ | |
| „ | 1⅓ | „ | 5th | „ | „ | „ | |
| „ | ⅔ | „ | 6th | „ | „ | „ | |

Shrank ⅔ in 7th quarter of an hour.
" ⅔ " 8th " " "
" ½ " 9th " " "
" ¼ " 10th " " "
" ½ " 11th " " "
" ½ " 12th " " "
" ½ " 13th " " "
" ¾ " 12 hours following.

Total shrinkage, 12 in 16¼ hours.

### (2) *Alba Alloy.*

Shrank 1½ in 1st quarter of an hour.
" ½ " 2nd " " "
" ½ " 3rd " " "
" ½ " 4th " " "
" ½ " 5th " " "
" ½ " 6th " " "
" ½ " 7th " " "
" ½ " 8th " " "
" ½ " 9th " " "
" ½ " 10th " " "
" ⅓ " 11th " " "
" 0 " 12th " " "
" ⅓ " 13th " " "
" 0 " 14th " " "
" ⅓ " 15th " " "
" 0 " 16th " " "
" 0 " 17th " " "
" 0 " 18th " " "

Regained 3½ subsequently. Total shrinkage, 3 5/6 points.

### (3) *Welsh.*

Shrank 1 in 1st quarter of an hour.
" 1 " 2nd " " "
" 1 " 3rd " " "
" 1 " 4th " " "
" 1 " 5th " " "
" ½ " 6th " " "
" ½ " 7th " " "
" 4⅔ " 8 hours following.
" ⅓ " 1 week following.

Total shrinkage, 11 in 1 week 9¾ hours.

### (4) *Flint Edge Gold Alloy.*

Shrank 1 in 1st quarter of an hour.
„ 5/6 „ 2nd „ „ „
„ 7/12 „ 3rd „ „ „
„ 7/12 „ 4th „ „ „
„ 7/12 „ 5th „ „ „
„ 7/12 „ 6th „ „ „
„ 5/6 „ 7th „ „ „
„ 5/6 „ 8th „ „ „
„ 1 „ 5 days following.
„ 1⅓ „ 7 days following.
Total shrinkage, 8 in 12 days 2 hours.

### (5) *Davis' Gold Alloy.*

Shrank 1 in 1st quarter of an hour.
„ 1 „ 2nd „ „ „
„ ½ „ 3rd „ „ „
„ ¾ „ 4th „ „ „
„ ¼ „ 5th „ „ „
„ 0 „ 6th „ „ „
„ 0 „ 7th „ „ „
„ 0 „ 8th „ „ „
Regained ½ in 5 days following.
Total shrinkage, 3 in 5 days 2 hours.

### (6) *Submarine washed in Methylated Spirit.*

Shrank 1½ in 1st quarter of an hour.
„ 1 „ 2nd „ „ „
„ 1 „ 3rd „ „ „
„ 0 „ 4th „ „ „
„ 0 „ 5th „ „ „
„ 0 „ 6th „ „ „
„ 0 „ 7th „ „ „
„ 0 „ 8th „ „ „
Regained 1½ in 3 days following.
Total shrinkage, 2 in 3 days 2 hours.

### (7) *Submarine unwashed.*

Shrank 2 in 1st quarter of an hour.
„ ⅔ „ 2nd „ „ „
„ ⅓ „ 3rd „ „ „
„ ¼ „ 4th „ „ „
„ 0 „ 5th „ „ „
„ 0 „ 6th „ „ „
Regained ½ in two days following,
Total shrinkage, 2¾ in 2 days 1½ hours.

(8) *Black No. 2 formula annealed.*

Shrank in 1st quarter of an hour.
Regained 1 in 2 hours following.
Total shrinkage, *Nil* in 2 hours.

(9) *Black No. 1 formula annealed.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Shrank | $\frac{1}{4}$ | in | 1st | quarter | of | an | hour. |
| ,, | $\frac{1}{3}$ | ,, | 2nd | ,, | ,, | ,, | |
| ,, | 0 | ,, | 3rd | ,, | ,, | ,, | |
| ,, | 0 | ,, | 4th | ,, | ,, | ,, | |
| ,, | 0 | ,, | 5th | ,, | ,, | ,, | |
| ,, | 0 | ,, | 6th | ,, | ,, | ,, | |
| ,, | 0 | ,, | 7th | ,, | ,, | ,, | |
| ,, | 0 | ,, | 8th | ,, | ,, | ,, | |

Total shrinkage, 7/12 in 2 hours.

(10) *Black No. 1 annealed.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Shrank | $\frac{1}{2}$ | in | 1st | quarter | of | an | hour. |
| ,, | 1/6 | ,, | 2nd | ,, | ,, | ,, | |
| ,, | 0 | ,, | 3rd | ,, | ,, | ,, | |
| Gained | 1/6 | ,, | 4th | ,, | ,, | ,, | |
| ,, | 0 | ,, | 5th | ,, | ,, | ,, | |
| ,, | 0 | ,, | 6th | ,, | ,, | ,, | |
| ,, | 1/6 | ,, | 7th | ,, | ,, | ,, | |
| ,, | 0 | ,, | 8th | ,, | ,, | ,, | |

Total shrinkage, $\frac{1}{3}$ in 2 hours.

(11) *Black No. 1 formula annealed,*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Shrank | 1 | in | 1st | quarter | of | an | hour. |
| ,, | 0 | ,, | 2nd | ,, | ,, | ,, | |
| Regained | $\frac{1}{4}$ | ,, | 3rd | ,, | ,, | ,, | |

Total shrinkage, $\frac{3}{4}$.

(12) *Black No. 1 formula unannealed.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| No change | | in | 1st | quarter | of | an | hour. |
| ,, | | ,, | 2nd | ,, | ,, | ,, | |
| ,, | | ,, | 3rd | ,, | ,, | ,, | |
| Expanded | 1/12 | ,, | 4th | ,, | ,, | ,, | |
| No change | | ,, | 5th | ,, | ,, | ,, | |
| Expanded | $\frac{1}{4}$ | ,, | 6th | ,, | ,, | ,, | |
| ,, | $\frac{1}{4}$ | ,, | 7th | ,, | ,, | ,, | |

20 hours total gain, 7 points.

### (13) *Copper Amalgam.*

| | | | | | | |
|---|---|---|---|---|---|---|
| No change | | in | 1st | quarter | of | an hour. |
| ,, | | ,, | 2nd | ,, | ,, | ,, |
| ,, | | ,, | 3rd | ,, | ,, | ,, |
| ,, | | ,, | 4th | ,, | ,, | ,, |
| ,, | | ,, | 5th | ,, | ,, | ,, |
| Shrank | ¼ | ,, | 6th | ,, | ,, | ,, |
| No change | | ,, | 7th | ,, | ,, | ,, |
| ,, | | ,, | 8th | ,, | ,, | ,, |
| ,, | | ,, | 9th | ,, | ,, | ,, |
| ,, | | ,, | 10th | ,, | ,, | ,, |

Shrank 1 in 10 days following.
Total shrinkage, 1¼ in 10 days 2½ hours.

### (14) *Eckfeldt Dubois.*

Shrank 3½ in 1st quarter of an hour.
Regained 1 in 12 hours following.
Total shrinkage, 2½ in 12 hours.

# THE ANTRUM AND ITS DISEASES.[*]

## By Mr. F. W. Horrocks.

The subject of to-night's paper cannot fail, I think, to interest, when we consider the number of Antral cases which every dentist sees.

### *Description of the Antrum.*

The Maxillary Sinus or Antrum of Highmore is a large pyramidal cavity hollowed out of the substance of the superior maxilla, the largest and most important bone from a surgical point of view, of the face. Generally speaking the antrum is larger in the male than in the female, and diminished in size in old age. Its capacity varies greatly, though as a rule it does not exceed two and a half drachms. The two antra are seldom symmetrical, and are often divided by

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Read before the Students' Society, Victoria Dental Hospital, Manchester.

ridges of bone into smaller cavities. More rarely the cavity extends outwards into the malar bone, forming what has been termed a malar, or supplemental antrum.

As just stated, the shape of the antrum is irregularly pyramidal, the apex corresponding to the malar process of the superior maxillary bone; its base being formed by the outer wall of the nose. Its walls are remarkably thin and almost transparent. They are very brittle, being composed almost entirely of thin laminæ of compact bone, with the exception of the inferior border or alveolar process which is the thickest, broadest, and most spongy part of the bone. It is this alveolar border which is hollowed out into deep cavities for the reception of the teeth and which forms the greater part of the floor of the antrum.

The antrum is bounded by the surface of the bone in which it is contained. For convenience of description these surfaces are named according to the relation which they bear to the other parts of the face: *Orbital, External or Facial, Posterior or Zygomatic, Internal or Nasal, and Alveolar.*

The Orbital wall is the thinnest of all the walls of the antrum. It is triangular in shape, smooth, semi-transparent, and separates the cavity of the antrum from that of the orbit. It is channelled by a canal which grooves the orbital surface and forms a corresponding bulging on the antral surface. This canal is traversed by the infra-orbital vessels and nerves.

The external facial surface is thicker than the internal and orbital surfaces, being especially thick at the edges. In the region of the canine fossa a fairly strong stilette may be readily made to perforate this wall. This latter fact has been demonstrated by Dr. Zarinko, of Hamburg.

The Posterior or Zygomatic wall is convex, its concavity towards the antrum. About its centre it has various apertures which lead to canals in the substance of the bone. The canals transmit the posterior dental vessels and nerves. At the inferior portion of this surface is a thick rounded eminence, which however lies below the level of the antrum.

The Internal or Nasal Wall is formed by the outer wall of the nose. It looks directly inwards. On examination of a macerated specimen this wall presents a large irregular opening which communicates with the nasal fossa. This irregular opening is partly closed by the ethmoid, inferior turbinated and lachrymal bones on the articulated skull. During life the antrum communicates with the middle meatus of the nose by one or sometimes two small apertures. Of these the anterior is the real cstium maxillare, the posterior being the ostium maxillare accessiorium. This is the view adopted by M. Giraldis, who, however, denies that the ostium maxillare opens into the meatus itself, maintaining that it only communicates with the infundulum. The ostium maxillare is guarded by a valvular flap of mucous membrane. Its dimensions vary. Zuckerkandle who published an account of his investigations in 1882, made the following statements concerning them. The smallest was 3 mm. in diameter, and the largest 19 mm. long, and 5 mm. broad. The average measurement was 7 to 11 mm. in length, and 2 to 6 mm. in breadth.

The Floor of the Antrum is formed by the thick, spongy, alveolar process of the superior maxillary bone. It is excavated into deep cavities for the reception of the teeth. As a rule it is only the molar teeth which come into relation with the floor of the antrum, though sometimes the antrum extends over the sockets of all the teeth, from the canine to the molar inclusive (McLachlan).

Necessarily the teeth make projections on the floor of the antrum, the so-called "alveolar-bucht" of the Germans. The fangs of the first or six year molar may lie free in the cavity of the antrum, being simply covered by a layer of mucous membrane. Hence it will be readily understood how an aching first molar may produce irritation and consequent suppuration of the mucous membrane lining the floor of the antrum (Heath and McLachlan).

Although the floor of the antrum is generally described as being thick and spongy, it is by no means strong, and may be considerably damaged by a careless operator, during the extraction of a molar tooth.

The antrum is lined by a layer of ciliated epithelium continuous with the nasal mucous membrane.

A normal antrum should fulfil the following conditions ;—

(1) It should reach as high as the niveau of the roof of the nose.

(2) The nasal wall should be in the same sagittal plane as the os planum or lamina papyracea of the ethmoid bone.

(3) The alveolar border should lie over the four last teeth.

(4) All the walls should be transparent, at least in the middle.

*Development of the Antrum.* The antrum in the newborn child is a very narrow pocket, which extends laterally as far as the infra-orbital canal. The remaining space is taken up by the tooth germs and spongy bone. Also after the eruption of the milk teeth, the tooth germs of the permanent teeth, leave little space for the antrum. But as soon as the permanent back teeth have erupted, the antrum begins to assume definite proportions. In consequence of these facts, when opening the antrum of a young individual who has not completed his second dentition, the probe must *always* be inserted through the middle meatus.

*Enumeration of Diseases of the Antrum.*

According to Heath the diseases of the antrum may be divided into the following groups

1. Inflammation and Suppuration. Empyema Antri.

2. Fistulæ of the Antrum.
3. Cystic disease—Hydrops antri.
4. Tumours of the antrum.

### 1. *Empyema Antri.*

Under this heading comes ordinary suppuration and double antral abscess.

### 2. *Fistulæ of the Antrum.*

These are subject to considerable variation, and are divisible into the following two classes.

(a) Fistulæ opening on to the surface of the face in the region of the cheek, or just below the lower eyelid.

(b) Fistulæ opening into the mouth either through (1) the alveolar process, (2) just above the alveolar process, (3) through the hard palate.

These fistulæ are either surgical, the result of operation, or traumatic, the result of injury.

### 3. *Cystic Disease of the Antrum.*

Under this heading comes Hydrops Antri and the various antral cysts.

### 4. *Tumours of the Antrum.*

These are uncommon and consist of (1) Simple, and (2) Malignant tumours.

Under the head of simple tumours come:

(a) Polypus.
(b) Fibroma.
(c) Enchondroma.
(d) Osteoma.

Malignant tumours (more frequent than simple)

(a) Epithelioma.
(b) Secondary epithelioma.
(c) Sarcoma.

*Empyema of the Antrum.* (1) *Causes.*

It is said that inflammation never commences in the antrum itself, but is propagated from neighbouring structures

As might be naturally supposed the trouble primarily originates in the nose or teeth, principally in the latter. This is due to the roots of the first and second molar teeth often, and the bicuspids and canine occasionally, as stated previously, projecting into the floor of the antrum. Hence when these teeth become carious, the thin plate of bone covering their fangs becomes affected, and thus becomes the means of propagating a disease really due to a bad state of the teeth.

In certain cases the fangs of the first molar teeth are only separated from the cavity of the antrum by a thin layer of mucous membrane. Under these circumstances inflammation and suppuration would be still more likely to take place. An abscess, however, may be formed in the alveolus of a tooth not originally connected with the floor of the cavity, and by encroaching on the surrounding parts, may invade the antrum. Inflammatory conditions of the alveolar periostium may result in abscess of the antrum. Frankel has effectually demonstrated that the antrum of all the accessory cavities of the nose is that most frequently affected. This indicates the dental origin of the disease.

Zuckerkandl believes that the nose is more often the cause of the trouble. For instance, polypoid degeneration of the mucous membrane of the middle meatus may lead to suppuration in the antrum.

Acute catarrh of the nose in influenza may be followed by antral abscess. Other causes of antral abscess are, injuries to the face, with and without fracture of bone, operations on the face, syphilitic necrosis of the superior maxillary bone, and the entrance of foreign bodies such as food, into the antrum.

Symptoms. The symptoms of Empyema Antri depend on the amount of drainage that can take place through the Ostium Maxillare. Hence the condition of the Ostium

Maxillare, whether blocked or patent, influences the character of the symptoms. In case 1 where the Ostium Maxillare is blocked, the pus not finding an exit, will fill and distend the antrum, pushing up the floor of the orbit, and displacing the eyeball, projecting inwards into the nose, protruding forwards on to the cheek, and making its way backwards into the zygomatic fossa and downwards into the mouth. The existance of the abscess in such a case can be demonstrated by exerting pressure on the bone, when a peculiar crackling sound is perceived. If not emptied the matter will find a way out for itself, either by the side of the teeth, through the front wall of the antrum, or through the floor of the orbit, in either of which cases considerable disfigurement will ensue. In these cases pain is generally a prominent symptom, being usually felt in the cheek, and fever with rigors is frequently present. The elevation of the floor of the orbit if allowed to continue may lead to partial and even permanent blindness. (A case of permanent blindness through this cause was here read from the Med. Soc. Trans. for 1863).

Loss of sight, serious though it be, is not the worst result of neglected suppuration in the antrum. For the details of a case where death followed Empyema Antri, I would refer you to Case 12 in Appendix to "Heath's Injuries and Diseases of the Jaws." Suppuration may assume a more chronic form and the slow expansion of the jaw may be taken for a solid growth. This is especially liable to happen when considerable hypertrophy of the osseous wall has taken place.

A case has been recorded (Stanley, p. 285), of a woman aged 24, who had a large hard round swelling of the cheek in the neighbourhood of the antrum. It was free from pain and the soft parts covering it were healthy, and such was the solidity and hardness of the swelling that it was supposed it might be an osseous growth from the antrum, and the history appeared to confirm this view of its nature, for about five months previously stated that she had received a blow on the cheek, and that soon afterwards the swelling commenced and had slowly increased to its present size, viz., that of a medium sized orange. A scapel was thrust into the tumour immediateiy above the sockets ef the molar teeth, and a stream of healthy pus flowed from the opening, the discharge continued in gradually decreasing quantities, and the swelling subsided as the walls of the antrum receded to their proper size.

The thickening of the bone may remain permanently, and cases have been recorded where operative interference has been resorted to for this disfigurement.

### *Cystic Diseases of the Antrum.*

(1) We have cysts connected with the roots of the fully formed teeth, and these may be called Periosteal Cysts.

(2) Cysts connected with developing teeth, and with teeth retained within the jaw, and these we may call Dentigerous Cysts.

Periosteal Cysts are formed most probably from the same cavities that produce alveolar abscess, only the morbid process being less acute, a serous fluid is poured out instead of pus, and they generally affect the antrum by absorbing some part of its floor, or of one of its walls by their continued pressure and then expanding into it. Like the other cysts they give very little pain in their growth, which is very slow compared with the growth of an abscess, and they may at last reach to so large a size as to fill the sinus. In some cases after they have made an opening into the antrum the envelope of the cyst bursts, and the fluid, being still secreted is poured out in the cavity until at last its walls are distended, its outer wall becoming so thin as to crackle like paper, and the fluctuation of the fluid can be felt.

If the cavity is tapped with a trocar a quantity of clear or yellowish serous fluid is drawn off.

Formerly when a patient was thus afflicted he was said to have "Dropsy of the antrum," or "Hydrops Antri," a name which might with advantage be given up. The explanation of this name is obvious. The natural secretions of the lining membrane had become imprisoned by the blocking of the aperture between the nose and the antrum. Hence the distention of the antrum.

In order to effect a cure for these cases, the plan of probing was tried, and is in fact still described in some foreign manuals on operative surgery. One French author gives full details of this method of probing and then injecting, but after showing that there was great difficulty and uncertainty in finding the natural orifice remarks, "There are very few cases in which the employment of injections through the natural openings in the manner above described would effect a complete cure.

(2) Dentigerous Cysts may also produce swellings in this part which give rise to symptoms that are much the same as those caused by other cysts, but it is well to remember their possible occurrence in treating any fluid tumours that are found in the antrum, for if the teeth they contain are not extracted, success can hardly be hoped for, as the cause of the secretion is still *in situ*.

In any suspected case it is better to examine the teeth in order to see whether any are missing, for although cases are on record in which these cysts contained temporary or supernumerary teeth, they generally exist around permanent ones, and mostly are found in young adults. On the other hand, we must not suppose that because a tooth is not cut it follows that it is retained in the jaw, for it may be wanting altogether.

To discriminate between these causes, and innocent tumours is difficult, for to a great extent they both are alike, and cases have been recorded where excision of the Jaw has been performed for trouble which was really caused by Dentigerous Cysts.

The treatment for cases of Cystic disease very much resembles that pursued when an antral abscess is to be dealt with, and the first step is to remove, if possible, the exciting cause.

If the Cyst arises from the mucous membrane of the antrum, we may not be able to do this on account of inability to trace the affection to any particular tooth, and then it is obvious that the antrum must be opened inside the mouth, the spot being where the bone is thinnest. After the fluid has escaped the antrum should be treated in the manner before described.

When the antrum is crowded with cysts, Heath considers that excision of the maxilla is the only operation of any use. When the cause of the trouble is a periosteal cyst, we may be fortunate enough to bring it away when extracting the root to which it belongs, and in order to do this great care must be of necessity taken to bring the whole of it away at once.

When the cyst remains after the extraction of the tooth or root, it is better to introduce a drainage tube into the sac through the empty socket.

Mr. Coleman in a similar case to this last one suggests that the cyst be made to suppurate after it is emptied in order to prevent any further secretion, as he considers this likely to to happen if only stimulants are used. He packs the cavity with lint, moistened with carbolic acid until the desired result is accomplished, but never longer than 24 hours.

# RECENT DEMONSTRATIONS.

## (1) THE COMPO SWAGING FLASK.

Mr. Vernon Knowles has lately developed the idea of using modelling composition for swaging up soft metal for (*a*) Lining the Model; (*b*) For making trial plates; and (*c*) for making polishing plates. The flask is of gun metal somewhat larger than the ordinary vulcanizing flask and consists of two halves, the upper half having two tongues which fit into corresponding slots in the lower. The rim of the lower has a removable slot covering an aperture large enough to allow the handle of an impression-tray to rest.

When it is required to line the model, remove the slot from the bottom part of the flask, fill the flask about three parts full of composition and embed the impression tray in it, the handle of the same projecting through the opening. Cool under the tap, then brush over with French chalk and water, or soap and water and having filled the top part of the flask with composition (leaving it slightly higher in the centre), squeeze the two parts of the flask together in the press or parallel vice, and when the two parts of the flask are $\frac{1}{8}$ of an of an inch apart, press the thumb over the slot to prevent any more Composition coming out. Remove immediately, cool under tap, and part as soon as possible. Thoroughly chill.

The next step is to cut a piece of Lining Metal of suitable shape, and mould on the Composition model with the fingers, taking care to get all the creases out, then partially squeeze up in the vice, open, remove the metal, trim up, get any creases out, squeeze up a second time right home, open, place the metal in position on the impression, turn up the outside edge at the back slightly, so as to get a better hold in the plaster, tap out Composition setting, tray, etc., from the flask and cast. Remove the Composition, etc., with boiling water.

The above instructions apply especially to edentulous cases. Should there be teeth standing, the holes in the impression must be lubricated and filled up with small portions of soft Composition, which can be removed before casting:

### *For Trial Plates.*

Put the slot back in place, fill the bottom part of the flask with soft Composition, press the model into the same, press the Composition round the sides of the model until flat. Then cool under the tap, remove the model, and lubricate.

Fill the top part of the flask with Composition, as before, squeeze both parts together in the vice; cool at once under the tap and part when thoroughly chilled.

Cut a suitable piece of Soft Metal, mould it on to the Composition with the fingers, partially squeeze up in the vice; remove, trim, and squeeze up home. Take a smaller piece of metal, cut so as to reach the gum margin only and $\frac{1}{8}$ inch from the palatine edge of the first piece, squeeze up on top of the first plate, and then a third on top of the other two, also $\frac{1}{8}$ inch shorter than No. 2. This is to give a sloping edge. Tack together with hard wax, and mount the teeth. This gives a rigid plate for trying in.

### *For a Polishing Plate.*

Place the Trial Plate on the model, and the left forefinger round the incisor teeth, and squeeze on to the palate a piece of Composition the shape of an egg, to get the impression of the lingual surface of the plate and teeth. Hold the model and Composition under the tap to cool them, and also to prevent the teeth shifting.

Fill the bottom of the flask three parts with Composition and embed the under surface of the impression of the plate. Cool, lubricate, fill the top and squeeze up as before. Cool at once, when thoroughly chilled.

Mold a piece of Soft Metal, the same as used for Trial

Plates, on to the impression, squeeze up partially, remove, trim and squeeze up home. Place on the Trial Plate, fix with a hot wax knife, having previously bent up slightly the corners at the back of the polisher, so as to hold well in the top plaster in flasking.

When the Polishing Plate has been pulled off in the top plaster, carefully polish the surface next to the vulcanite with Whiting or French Chalk, so as to remove any graining that may be in the metal. If this precaution is taken the case comes out with a much better polish.

Mr. Knowles finds that the best Composition to use with this method are either Ash's Crown or the Dental Manufacturing Co.'s New Crown, as they are much more plastic when hot, and set harder when cold, than any of the other varieties. A Flask takes 1 lb. of Composition, and should be lubricated before inserting the same. The Lining Metal should be very thin, as near the thickness of gold leaf as possible. The Soft Metal for Trial and Polishing Plates should be No. 6 gauge (Ash) and 5½ inches wide, to save waste.

Too much care cannot be taken to ensure that the Composition in each of the various stages, is thoroughly hard before swaging the plates, particularly in warm weather.

Mr. Knowles worked with great rapidity the time expended in making a trying-in plate, being very much shorter than by the Steam Swager. If care is taken that the Composition is thoroughly set, a very satisfactory result is obtained at a small cost in time, labour, and money.

## No. 2. Celluloid Strips.

Mr. G. J. Wardill, recently, at Guy's Hospital Dental School, demonstrated the various uses of celluloid strips introduced by him about two years ago. The celluloid is now put up in convenient sizes and sent out by the Dental

Manufacturing Company, Thick, Medium, (rough on one side), and thin.

The thick is used as a matrix for amalgam or osteo fillings, by cutting off suitable lengths and ligaturing on the tooth; being flexible it can be adapted to the cervical edge by wedging with Amadou, &c.

The medium can be used in an almost infinite variety of ways. As a matrix it is easily adjusted in many ways, by wrapping once, or if space allows, two or three times round the tooth and either wedging the end between the teeth, ligaturing, sticking the end down with hard wax, or in any way the case best suggests. The material is so exceedingly pliable and tough as to allow of its being most perfectly wedged up to follow any inequality in the cavity, with amadou, wood, temporary gutta percha, hard wax cement, &c. The surface left on the filling is as nearly as possible perfect, in simple cases the matrix can be formed by holding the strip tightly round the tooth with the finger and thumb, when the cavity is sufficiently full the side of the celluloid matrix can be pulled over with a ball ended instrument which causes the top of the filling to be moulded to the tooth in the form desired. As a means of finishing off Amalgam and Osteo fillings, these strips can be used, held either between the fingers, or with one end held in the tweezers, taking a turn round the points and used strip fashion. An Amalgam filling can be trimmed down with the rough side almost perfectly to the edge of the cavity, leaving the filling slightly contoured, which is not the case with rubber dam. The smooth side can be used to finish and polish. These fillings can then be left without subsequent polishing, a thing to be desired, as a cut surface tarnishes much more rapidly than the mat surface of an undisturbed filling. This grade of celluloid is also useful for capping, for protecting one filling whilst inserting another, for using as an articulating medium with lamp black, for fine crown filling, and for polishing with abrada, pumice, &c.

The thin is used for cutting down between interstitial cavities when filling with Amalgam, finishing off, by pulling backwards and forwards, or rubbing down with an instrument or piece of Amadou, leaving a highly burnished surface. In finishing Osteo, the strip should be oiled, while for finishing gutta percha fillings it should be moistened with Chloroform.

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To Anæsthetise Dentine.—To anæsthetise sensitive dentine—place a pellet of cotton in the cavity saturated with carbolic acid and dipped in crystals of hydrochloride of cocaine. Blow hot air for a few minutes and a layer of dentine will be found to be anæsthetised.

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Formalin Mouth Wash.—The following recipe is said by Ganz, to make an efficacious antiseptic mouth wash :—50 grammes of 40 per cent. formaldehyde are dissolved in 1000 grammes of spirit; tincture of benzoin, 200 grammes; tincture of myrrh, 50 grammes; oil of peppermint, 3 grammes; anise oil, 2 grammes; cassia oil, 1 gramme; cinnamon oil, 15 drops; and cochineal powder, 2 grammes, are mixed; the whole well stirred and filtered.

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Anodyne for Toothache.—Howe recommends the following anodyne:—One part carbolic crystals and three parts menthol are melted together; the light amber coloured, aromatic fluid which results has a burning, but not caustic taste, it is readily soluble in alcohol, ether, chloroform, and most oils, and has the property of dissolving iodoform and aristol. The solution is said to possess strongly antiseptic properties, but is specially valuable for its anæsthetic action, especially in the case of painful tooth-pulps.

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## ONE MAN COMPANIES.

On several former occasions we have drawn attention to the anomalies which exist at present in our laws relating to limited Companies, by which the Medical, Dental, Pharmaceutical, and Veterinary Acts are being set at defiance by unqualified practitioners. As the law at present stands any seven persons, male or female, can, at a cost of seven or eight pounds, form themselves into a limited Company which can practise any of the above professions without rendering itself liable to any of the pains and penalties incurred by the individual under similar circumstances. The Pharmacy Act was the first to be attacked, and the Pharmaceutical Society some years ago carried a case against the Provincial Supply Association up to the House of Lords and was defeated. The decision pointed out that it was impossible for a Company to comply with the conditions of the Act as regards education, examination, and license to practise, and it was argued from this that the word "person" could not be applicable to a "Company," and as the Act only referred to "persons," no penalty could be exacted from a "company."

To the non-legal mind this sounds very like nonsense, but law and common sense do not always run together, and the ruling still holds good. What the result is we all know only too well. We see Companies composed of members of one family, male and female, most of whom perhaps hold one share apiece often of the value of a pound or less. These people having passed no examination and holding no qualification, carry on medical, dental, and pharmaceutical practices, deceiving the public, competing unfairly with qualified practitioners, and laughing at the various Acts for the protection of the public. Coroners may complain and suggest prosecution in some flagrant case of ignorance or malpraxis, but when Counsel's opinion is taken, the result always is that as the law at present stands, no proceedings against a Company can be taken with success.

Some three years ago a Departmental Committee was appointed by the Board of Trade to enquire into Company law with a view to its amendment. The various Associations, Medical, Dental, &c., endeavoured to obtain a hearing before the Committee, but failed, as the duties of the Committee were defined by the Board of Trade, and these matters lay outside the scope of their enquiries. The President of the Board of Trade, however, received a deputation, and a draft report was issued in which the evils complained of were set forth, drawing attention to the fact that in several instances individuals who had been proceeded against, had incorporated themselves into a Company and were thus evading the law. The deputation not being satisfied with this small measure of help, enlisted the assistance of Lord Herschell who drafted an amendment in the House of Lords. This amendment was referred to a select Committee, and has not since been heard of. The original deputation has done nothing more, but at the last sitting of the General Medical Council, a small deputation consisting of the President, Mr. Horsley and Mr. Tomes, was appointed with the object of furthering this reform, and we believe that this deputation has been received by the President of the Board of Trade and is doing its utmost to obtain a satisfactory clause inserted into the new draft of the Bill. More recently, in the House of Lords, on the discussion of the standing Committee on the Pharmacy Bill, the Lord Chancellor suggested that the measure should be amended making Companies equally liable to punishment with individuals. We do not think the Bill will become law this session, but we hope that a Bill will be introduced next session, dealing not only with Pharmacy, but also with Medicine, Dentistry, and Veterinary practice, making incorporation into a Company of no avail to those who would evade the law. Parliament is opposed to the idea of monopoly, and this bugbear is fostered by Company promoters, but in the case of our specialty and allied professions, which require special training, knowledge and skill, there can be no such thing as free trade. The interest of the public can only be safeguarded by limiting the profession to those who have fulfilled certain obligations by which their competence is assured. Therefore it is the paramount duty of the State to prevent evasion of the law and to punish its infringement. In addition, the practitioner practically enters into a contract with the State to perform a given curriculum and obtain a certain license, and it is only fair that the State in return should enter into a contract to protect him after he has done so.

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Giving Anæsthetics for Unregistered Practitioners.—Dr. Buist is circulating the following letter amongst members of the Dundee Branch of the British Medical Association. We hope that other local Secretaries will follow suit.

I am instructed to send you the accompanying copy of a Resolution received from the Registrar of the General Medical Council, relative to the administration of anæsthetics by registered Medical Practitioners for dental operations performed by persons not registered under the Dental Acts, to which the Council of the Branch asked me to draw attention :—

> "That the Members of the Dental Committee agree with the opinion expressed by the Executive Committee that the practice referred to in Dr. Buist's letter is most reprehensible, and recommend that if a charge of 'covering' in connection with such administration of anæsthetics were brought before the General Council it should be entertained and investigated."

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Dentist imprisoned for furious Cycling.—Mr. Aubrey Harris, house surgeon at the London Dental Hospital, has lately undergone a most unpleasant experience. He in com pany with some other young men were proceeding on their bicycles and hoped to have had a happy day on the river, as they were clad in boating garb and had luncheon baskets and cameras strapped on their machines. But a change came over them when they were stopped by Police-constable Jourdan, who on the ground that they were riding furiously at the rate of sixteen miles an hour, haled them to the police station, where they were locked in the cells and searched. Mr. Harris contended that they were not going faster than ten miles an hour, while an independent witness put the rate down at twelve. Whatever the speed may have been the police seem to have acted in a very high-handed manner in placing respectable citizens in the cells for such an offence, and it seems that the act of searching them is distinctly illegal. The Bench fined Mr. Harris and friends ten shillings each and costs, but they had the satisfaction of taking out a summons against the constable who searched them for a technical assault.

THE COUNTRY DENTIST.—Mr. W. W. Belcher thus quaintly describes some of the dodges the dentist has to resort to when far from the convenient "depot." "Far removed from the dental depot, the country dentist cheerfully overcomes difficulties that would drive a city dentist to despair. He sandpapers teeth to alter the shade, backing them with gold to give a yellow cast, with platinum to produce a blue tint, uses rubber teeth for backing by drawing down the pins and grinding off the shoulder, to produce the desired "flat back." He "cracks" teeth to obtain platinum, at a pinch melts the same by means of a cylinder of gas and a two-dollar blowpipe, constructs instruments for his special needs, and makes nerve broaches out of needles, trusts in the Lord, and does the best he knows how."

PIOUS CONFIDENCE.—The *Christian World* prints an amusing example of the pious confidence which the Pasha of Damascus—like probably the majority of his congeners—is prepared to put in Allah as a practical statistician and sanitarian. The French statistical department, anxious to obtain definite information on certain matters from the Turkish provinces, sent lists of questions, to which they requested replies, to the various provincial pashas. Certain of the questions were addressed to the Pasha of Damascus and his replies ran, according to our contemporary, as follows:—

Question: What is the death-rate per thousand in your principal city? Answer: In Damascus it is the will of Allah that all must die; some die old, some young.

Question: What is the annual number of births? Answer: We don't know; only God alone can say.

Question: Are the supplies of drinking water sufficient and of good quality? Answer: From the remotest period no one in Damascus has ever died of thirst.

Question: General remarks on the hygienic condition of your city? Answer: Since Allah sent us Mohammed his prophet to purge the world with fire and sword there has been a vast improvement. But there still remains much to do. Everywhere is opportunity to help and to reform. And now, my lamb of the West, cease your questioning, which can do no good either to you or to anyone else. Man should not bother himself about matters which concern only God. Salem Aleikum!

It is clear that the doctrine held by the Christian that God helps those who help themselves finds no favour in the municipal government of Damascus.

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Eucaine.—Reclus (*Bull. de l'Acad. de Med.*, March 29th, 1828) has used eucaine $\beta$ for more than six months. Its solutions are very stable, and can be boiled, whereas cocaine at 80° is transformed into ecgonine, which is without analgesic effect. It is much less toxic than cocaine, but its anæsthetic effect is also weaker. Reclus prefers a 2 per cent solution for injecting into the tissues. It causes local vaso-dilatation, and hence bleeding is apt to occur, and half an hour after injection sharp smarting pain is often felt, which may last an hour or two. Reclus concludes that cocaine carefully used is to be preferred.

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SCIENTIFIC GRANTS.—Mr. Kenneth W. Goadby, L.D.S. Eng., Medical School, Guy's Hospital, S.E., has again been granted £5 by the Committee on Scientific Research of the British Medical Association, for the purpose of studying the organisms of the mouth with especial relation to the diseases of that region.

Mr. GOADBY has already prepared a report on leptothrix buccalis maximus, and will shortly forward another which will cover most of the research upon which he has been engaged. He has obtained pure cultures, and discovered a method whereby those organisms occurring in the mouth which so far have resisted cultivation may be cultivated—among them being the spirillum, at one time thought to be the same as the cholera bacillus. He has also pure cultivations of some 15 new micro-organisms, to be described, which he has found in cases of pyorrhœa alveolaris, and has also isolated a considerable number of chromogenic bacteria from the oral cavity. Mr. Goadby has also forwarded a long report on the bacteriology of the mouth.

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SYPHILITIC PRIMARY TEETH.—A practitioner writing to the *British Medical Journal* asks for suggestions "as to the treatment of syphilitic primary teeth. The notches in the upper incisors are not yet apparent, but discolouration has appeared, and he wishes if possible to prevent the pathognomonic signs of the disease being developed. The subject is a healthy child aged eighteen months, and has been treated to salivation with mercury. Perhaps some reader could suggest a preservative enamel or paint or could offer some other suggestion short of extraction, for what will otherwise prove an eyesore." In reply to the enquirer we beg to say that the true Hutchinsonian teeth are the permanent upper incisors, not the temporary, that if a notch has not appeared n the temporary incisors at eighteen months, there is no reason why it should do so at all. If the teeth are honeycombed no enamel or paint would be of much use, and we should recommend the practitioner to let the child be seen by a dentist from time to time. The permanent teeth may be quite satisfactory.

Liquid Borax for Soldering.—The following useful item by J. T. Usher is from the *Dental Cosmos*. He says: "Use a saturated aqueous solution of borax, made by filling a bottle with water and dropping into it a lump of borax. This is allowed to boil on top of the vulcanizer or elsewhere, and the water will take up a certain amount of the borax, leaving the residue undissolved. An ounce of this solution will last a busy man about a year. In using it the piece to be soldered is simply moistened where the solder is wanted to flow, and the solder will run like a flash, much easier than when the borax powder is used."

Pyorrhœa.—In summing up the question, we find several distinct varieties of pyorrhœa alveolaris described, and each one has its own peculiarities. The conclusions drawn are, first, that success requires an accurate diagnosis and treatment; secondly, that some varieties are almost incurable, and thirdly, the prognosis is generally unfavourable, or, as Prof. J. Foster Flagg has it, "Possible amelioration of greater or less length of duration; probable recurrence of trouble, with usually gradual but persistent re-establishment of previous condition."

Cleft Palate.—Mr. Arbuthnot Lane advises early operation in cleft palate cases—the fifth week, provided there is no special indication to the contrary; and a modified Davies-Colley is recommended as the best method.

THE FEAR OF DEATH.—Man occupies in view of death a situation that is peculiar, for he is probably the only being that knows he has to die. The battle against death spurs an immense number of men to study and work; and all the great intellectual and moral creations in art, religion, and science have been produced under the influence of the feelings excited by the certainty of that event. Yet the psychology of the ideas and emotions relative to death is still to be constructed. Man is not normally preoccupied with the thought of death. While he is in full vigour of health and strength he is not afraid of it and takes little heed of it. The idea that he will have to die some day rarely enters his mind, and when it does present itself it is so vague and relates to an event so uncertain as to the time when it will occur that no distress is produced by it.

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DENTAL EDUCATION.—What would the Dental Education Committee think of the following queries appearing in a lay Contemporary?—

Will some fellow-reader give me full particulars of this profession? What are the fees, and when payable? How long does it take to qualify? I have been told that I could keep to my present occupation, and study in spare time until I qualify as a mechanical dentist; then I could earn three guineas a week, live on two, and save the other for my final fee. Is this right? What is the standard of education, if any? What is the salary earned by a fully qualified man? Is the profession overcrowded? I should like to know the exact routine to be gone through; if any books are required, what cost, if they can be borrowed? Does a dentist have to provide his own instruments if he takes a situation? How much would it cost me to qualify? I live in the suburbs. What attendance is required at the hospital, and must it be in the daytime?

# Review.

Oral Pathology and Practice. A Text-book for the use of Students in Dental Colleges, and a Hand-book for Dental Practitioners. By W. C. Barrett, M.D., D.D.S., M.D.S. Philadelphia. The S. S. White Dental Manufacturing Company. 1898.

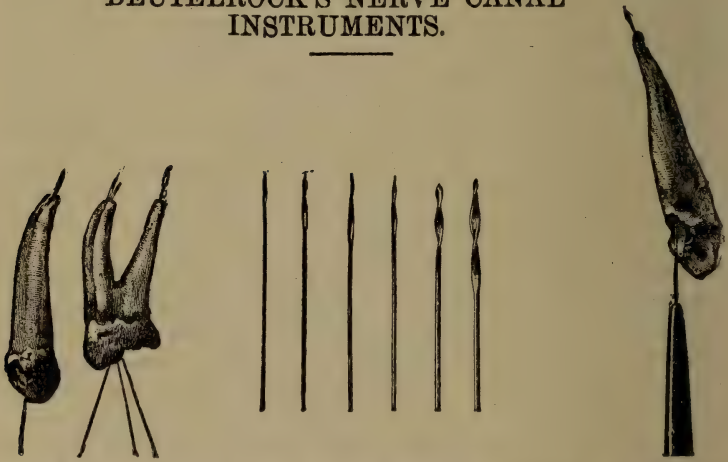
The author's aim has been to condense the subject-matter of his work rather than to amplify, but whilst giving a full account of all that is strictly dental, he has properly felt himself obliged to give a general consideration of such disorders as facial paralysis, syphilis and tumours. We gather that the book has grown out of the notes the author prepared for his lectures to Students, and it has a distinct individuality of its own. The introduction of headings in larger type is one of its features; they are well chosen and break up the chapters with advantage. We think we have already met in print with much, if not all of the original matter put forward by the author; but we are none the less pleased to have it collected between two covers. Especially interesting are the chapters dealing with Dentition, and the tables and figures relating to the diseases of infancy. As the author says, "A distinction should be clearly drawn between the so-called diseases of dentition, which may be digestive disturbances, and those that are actually produced by maldevelopment of the teeth, whose pathological history is quite different." We are pleased to find the author sound upon incision of the gum, although he follows the fashion in recommending the curved and pointed bistoury. We are quite at one with him in condemning the ordinary double-edged ovoid lancet, but what is the matter with the old-fashioned gum-lancet which can be used quite as effectively and with more safety?

In the Chapter on Caries we miss any reference to the preparatory work done by Milles and Underwood in demonstrating the relationship between dental caries and micro-organisms. However, we do not allow such an omission to detract from our hearty appreciation of Dr. Barrett's thoroughly practical and common-sense book.

# Manipulative Micellany,

It is requested that all new instruments or articles which it is wished to have described under this heading, be sent *for inspection* to the publisher not later than the 8th and 23rd of each month; they can be returned in a few days. Where, from the size or otherwise, this is impracticable a clear and minute description will be sufficient; the sole object being to give practitioners a description of everything new, on its own merits and without any intention or wish to pit one against another. All makers, vendors, and inventors, are invited, with strict impartiality, to contribute towards this end.

## BEUTELROCK'S NERVE CANAL INSTRUMENTS.



That happy time when we can afford to ignore the contents of root canals in dead teeth has not yet arrived, and in default of being able to sterilize the *debris* we must take it away. Those who use drills for this purpose know the difficulties which occur. Beutelrock's drills, which we have tried, seem well adapted to their purpose. They are certainly well tempered, and the arrangement of the cutting edges allows of clearance as the root is drilled. It is said that they are made of a new kind of steel, and are not hardened over the fire. They are supplied in three forms:—in handles and for both the straight and the right-angle handpiece. We have found the former very useful for introducing wisps of cotton into root canals. When turned to the left the cotton is easily left behind if desired.

# Abstracts of British & Foreign Journals.

## METHOD OF SHORTENING THE PERIOD OF PAIN DURING THE ACTION OF ARSENICAL APPLICATIONS.

The action of arsenious acid on the dentine and the pulp, and a method to shorten the pain during its time of application, was recently discussed in a paper read by Dr. Rjabkoff before the International Medical Congress, section Odontology.

Says he, in the *Oestereichisch-Ungarische Vierteljahrsschrift* :

The pain which is caused by the application of arsenious acid on pulps in a certain state of inflammation can often become very persevering. The same has been attributed to the caustic action of the acid, which one tried to alleviate by the addition of some astringents and anæsthetics. After long experimentation with pastes of different compositions, it was found that those admixtures did not improve the action of the acid ; on the contrary, the same had become uncertain and weak. The disturbing influence of these admixtures can be proved in the following : Cocain causes the pulp to dry up and become anæmic. Now, if it is admitted that it is absorbed by the pulp before or together with the acid, the above must be the consequence. The action of the acid is then held back, because it is a fact that devitalization takes quicker steps in pulps rich in blood.

Again, the powdery admixtures, as morphine and tannin, will always be on the surface of the paste, owing to their specific lightness. Only a little of the acid comes in contact with the pulp, therefore Dr. Rjabkoff tried to find out other means to alleviate and shorten the period of pain. Relying on the fact that arsenious acid causes the painless devitalization of sound, entirely exposed pulps, he came to the conclusion that in cases of pulp it is the presence of an intervening layer of tissue that must prevent necessarily the penetration of the acid deep into the pulp. The acid, coming in contact with the layer, will be absorbed by same; a scurf will be formed, which holds back its action for a time, the duration of which depends entirely on the thickness and structure of the inflamed tissue, as also on the pureness and consistency of the paste.

Should now, as it occasionally does, the scurfy layer of tissue rupture and the mass of paste get below it, in direct contact with a larger surface of the pulp, then a quick and painless devitalization takes place.

Only in these cases the pastes with admixtures have given satisfaction, and they have led to their general use.

The removal of the intervening layer of inflamed tissue would cause the acid to act much quicker. But as it is in most cases utterly useless to even try to remove it directly, on account of intense pain, Dr. Rjabkoff succeeded in the following way: He applied a good paste for ten to twenty minutes to the inflamed tissue; with a probe he then destroyed this layer, which could be done with very little pain, because it was perfectly devitalized. He then brought more paste on the probe in direct contact with the pulp mass, and found that the pain was not as intense any more and ceased entirely after the cavity had been closed up air-tight. The pain usually agonizing for hours had been reduced to twenty minutes, which the writer claimed as a big success.—*American Weekly*,

## A SUBSTANTIAL PORCELAIN FACE CROWN WITHOUT A DISPLAY OF GOLD.

By H. R. Jewett.

In making lower bicuspid and molar crowns with porcelain faces, the effect of the facing is almost entirely lost, from the fact that the cusps show so much more than the facings. To avoid the display of gold, and to secure a neat, easily-made and substantial piece of work, the following method may be used: After preparing the root in the usual way cut back the labial or buccal side of the tooth as though you were preparing for a thick porcelain face. Make the band as for a "shell crown." After it has been properly fitted to the root remove it and cut away the labial or buccal side as you did with the tooth, leaving a narrow band at the gum margin. Select a rubber tooth of the proper size and length to fit in the remaining part of the band, giving the proper articulation. Grind the shoulder off of the back of the tooth at the point where the pins enter; also grind off the heads of the pins. Next wrap the entire tooth (except the grinding surface) with very thin gold (or platinum), puncturing holes for the pins to enter and making a lap of the gold on the back of the tooth between the pins. Then cut away the surplus gold beyond the end of the tooth and lay it upon asbestos and solder without investing. The tooth thus covered is placed in the band and soldered, after which the gold covering the face is cut away, making a crown with porcelain face and cusps.

The rubber tooth rests within a pocket of gold and does not rely on the pins for support. The gold being soft it can be closely adapted to the tooth, making a very neat and cleanly piece of work.

If it is desired, a Logan pin can be clasped between the pins of the tooth, before making the first solder, and secure a pin for the crown without any additional work.—*American Weekly.*

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## PREPARING CAVITIES.

By Dr. D. D. AIKINSON.

All defective and unstable tooth structure must be cut away so there can be no doubt that that left can withstand the pressure necessary to consolidate the gold.

The cavity must be so shaped that the plugging instrument used will reach every part of it, and reach it in such a manner that the consolidating force can be applied with all facility. The margins of the cavity must be well rounded and made smooth, free trom all fragile edges, and if a line of chalky enamel is to be seen, which most frequently appears at the cervical margin, it must be cut away if requisite that it be cut beyond the gingivæ, for while this line is not in the cavity, it has in fact already disintegrated, and it would only be a matter of a short time when it would leave a new cavity about the margin of the filling.

Retaining points or grooves may be made for the anchorage of the gold; these are made not unnecessarily deep. It is only necessary that there should be two opposing points in the cavity into which the gold may be packed, though a groove extending throughout the circumference of the cavity is admissible if the situation favours it; but these grooves or pits need only be deep enough to afford lodgments for the first pellets of gold; any deeper than this will be a positive waste of tooth structure.—*American Weekly.*

## THE COLOUR OF NEGRO CHILDREN WHEN BORN.

There has been a discussion recently in France as to the colour of newly born Negro children. It is probable that scarcely one out of a million white laymen would, if asked this question, be able to answer it correctly. The large majority of the medical profession, too, are ignorant on the point. Not that it is a matter of great moment, but in these days when one's knowledge is expected to be absolutely accurate, it is satisfactory to have even the most minute details made clear. On the authority of Dr. Farabery, whose statement will doubtless be supported by many medical practitioners who have had experience in Negro obstetrical practice, "The Negro baby at the time of its birth is exactly the same colour as its white brother, and it shows signs of colour only after an interval usually of several days but often extending to many weeks." Some little time ago, says an English journal, there was an exhibition in the Champ de Mars of a Soudanese village, the colony of which numbered several hundred persons as black as ever were born. An eminent French physician saw there an opportunity to settle this vexed question, and he thus expresses his deductions; "The Negro baby comes into the world a tender pink colour; the second day it is lilac; ten days afterward it is the colour of tanned leather, and at fifteen days it is chocolate. The colouring matter in the case of the Negro lies between the layers of the epidermis. This pigment is semifluid, or in the form of fine granulations; in the Indian it is red, and in the Mongolian yellow. It is influenced not only by sun and by climate, but by certain maladies, and the Negro changes in tint just as the white person does.

# MATCHES WITHOUT YELLOW PHOSPHORUS.

In a letter recently published in one of the daily papers attention is drawn to the possibility of making a "strike anywhere" match without the use of yellow phosphorus. If the head of an ordinary "safety" be dipped in the paste which is put upon the sides of the match box, and which contains red phosphorus and sulphide of antimony, the match will be found capable of igniting upon any surface. Since the question of match poisoning is so much before the public at present, any suggestion that will contribute to a satisfactory solution of the problem of the prevention of phosphorism is welcome. It is said that even a Bryant and May's safety match can be made to ignite apart from rubbing it against the paper on the box. If the match is dry and it is quickly and deftly made to strike upon a dry and perfectly even surface it will catch fire. The match suggested by Mr. Cunynghame, the writer of the letter to which we have referred, is made from red phosphorus, which is generally admitted to be harmless. Since the publication of his letter it is more than probable that several experiments have been made on the lines stated therein. We mentioned recently that the Belgian Government had offered a prize of £2,000 to the inventor of a "strike anywhere" match containing no yellow phosphorus. The conditions under which the offer is made have been published in the *Labour Gazette* for this month. It is required that the match shall be a "safety" at every point, both to the worker and to the user; it must not ignite in the pocket, must be capable of transport, and of being warehoused. It must also be shown that the matches can be made upon a practical manufacturing scale, and as a test of this the inventor binds himself to produce one million matches under the inspection of the Commission of Industry on Belgian territory. The offer remains open until January 1st, 1899. Meanwhile the Belgian Government insists that the maximum amount of yellow phosphorus allowed in match paste must not exceed 8 per cent. In Holland and Switzerland dangerous trades are receiving similar attention to what is being given to them in England, and in the report of the Factory Department of Germany, just published, several trades, which have been receiving the consideration of the Departmental Committee of the Home Office have been scheduled by Germany as dangerous.

The State engineers in France have succeeded in giving a formula for making lucifer matches which does not include either white phosphorus or any substance injurious to the health of the hands or that of the public. Machinery has also been invented which will contribute to the health and safety of the hands. The machinery has been tested; after a few improvements have been made in it, it will be generally adopted in the Government lucifer match factories.—*Brit. Med. Journal.*

## FACTS WORTH REMEMBERING ABOUT HAND-PIECES.

The mechanism of hand-pieces and right angles is frequently rendered useless from excessive pressure arising from a desire to hasten the cutting operation and forcing the tools beyond their capacity. Many dentists hold on to their burs until the edges of the leaves are entirely worn off, and then press on the hand-pieces or right angles so as to force the cutting, or even with new sharp instruments they use double or triple the requisite pressure and thus damage things generally. The necessarily delicate mechanism of the hand-pieces and right angles will not necessarily stand much treatment. The gearing of right angles, although made as strong and heavy as the space will permit, is nevertheless quite a weak affair, and should be used carefully and cautiously.—*Western Dental Journal.*

## SUCCESSFUL PULP CAPPING.

Dr. Jack relates a case of pulp exposure in occlusal cavity capped in 1866; cap of heavy gold foil filled with a paste of hypophosphite of lime and glycerin, covered with gutta-percha; cavity filled with amalgam. Opened in 1872; exposure obliterated and adjacent dentine normally sensitive. In January, 1897, pulp exposure from caries on proximal surface at the cervix; no indication of pulp degeneration.

# Reports of Societies.

## ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, June 6, 1898. Mr. W. E. Harding, L.D.S., President, in the chair.

The Annual Meeting of the Society was held at the rooms of the Society on Monday, June 6, 1898.

Mr. W. E. Harding, (President) in the Chair.

The Minutes of the last meeting were read and confirmed, and Mr. F. J. Vanderpant signed the Obligation Book and was admitted a member of the Society.

The following members recommended by the present Council as officers and councillors for the year 1898-9 were balloted for and unanimously elected :—President, John Fairbank ; Vice-Presidents, John Ackery, C. West, and W. A. Maggs (resident) ; Malcolm Macgregor (Edinburgh), W. A. Hunt (Yeovil) and J. H. Whatford (Eastbourne) (non-resident) ; W. H. Woodruff (Treasurer) ; H. Baldwin (Librarian) ; Storer Bennett (Curator) ; J. F. Colyer (Editor of Transactions). Hon. Secretaries : J. H. Mummery (Foreign), J. O. Butcher (Council) and H. Lloyd Williams (Society). Councillors (resident): H. L. Albert, H. J. Kluht, A. E. C. Woodhouse, J. H. Badcock, G. W. Bateman, C. F. Rilot, L. Matheson, E. Lloyd Williams and W.J. England. Non-resident: E. N. Washbourne (Ripon), J. S. Amoore (Edinburgh), W. R. Ackland (Bristol), A. A. Matthews (Bradford), Morgan Hughes (Croydon), J. A. Fothergill (Darlington), Walter Harrison (Brighton), Alexander Kirby (Bedford) and Henry Martin.

The Librarian (Mr. W. A. Maggs) announced the following donation from Messrs. C. Ash & Sons, "Mechanical Practice in Dentistry," by W. Booth Pearsall, F.R.C.S.I. He also announced the receipt of *The Transactions of the American Dental Association*, and *The Transactions of the Odontological Society of Great Britain*, No. 2, Vol. XXV., and No. 3, Vol. XXVI., from the President, to complete a set of the Transactions to be kept for reference in the Museum.

The Librarian next presented his Annual Report. He said that thirty-eight members and eight visitors had made use of the library during the past year, ending on May 31, as compared with forty-three and fifteen respectively for the preceding year. The numbers of books borrowed—a privilege now enjoyed by members only—during the year was sixty, as compared with fifty-seven for the preceding year. Many donations and additions to the Library had been made, as were announced at the monthly meetings. The exchanged list of the Transactions of the Society had been slightly increased, and it now comprised the following transactions, proceedings, periodicals and journals:—

Bristol Medico-Chirurgical Journal, British Dental Association Journal, British Journal of Dental Science, British Medical Journal, Clinical Society Transactions, Dental Hospital of London Transactions of Students' Society, Dental Record, Dominion Dental Journal, German Odontological Society Transactions, Guy's Hospital Gazette, Guy's Hospital Reports, International Dental Journal, The Lancet, Manchester Odontological Society Transactions, Medical Society of London Transactions, National Dental Hospital Transactions of Students' Society. New York Odontological Society, Royal Dublin Society Proceedings, Royal Institution of Great Britain Proceedings, Royal Medical and Chirurgical Society Transactions, Royal Society of London Transactions, Smithsonian Institute Transactions, and West London Medical Journal.

The Transactions had been presented to the libraries of the Royal College of Physicians and Surgeons and to the University of Berlin.

The Society had continued to subscribe for the "Dental Cosmos," "Journal of Anatomy and Physiology," "Journal of Pathology and Bacteriology."

The following periodicals were sent gratuitously, and were acknowledged with thanks:—Chicago Dental Review, Journal of the Pharmaceutical Society.

The library had been opened for the convenience of members and visitors on Mondays and Fridays from 6.45 p.m. to 8.45 p.m., has had been the rule for some years past, and the sub-librarian had been in constant attendance upon those evenings. The Librarian concluded his report by expressing a hope that the library, which contained one of the best collections of dental works and current literature in the world, would be more used for reference purposes and for the loan of books; and he reminded the members that a recommendation book for new works was always at their disposal.

The TREASURER (Mr. Woodruff) also presented the Balance Sheet for the accounts of the Society for the year ending October 31, 1897.

Mr. F. CANTON said the amount which was put down for insurance seemed very small, and asked whether that included the specimens in the Museum.

The TREASURER said he could not say at the moment, but he would make it his business to find out.

Mr. W. A. MAGGS said that some four or five years ago the matter engaged the attention of the Council, and the insurance was considerably increased, and was made to include such items as the insurance of the portraits of past Presidents, and a year's rental in case of fire. The full details would be found in the Minutes of the Council.

On the motion of Mr. F. J. BENNETT, seconded by Mr. BETTS, the accounts were adopted.

The CURATOR (Mr. Storer Bennett) said the President had been good enough that night to present to the Society a number of old pieces of mechanical work which year by year were becoming scarcer, and as Museum specimens and objects to be studied were exceedingly valuable. He commended the action of the President to all who possessed specimens of the old work, especially old bone work, or any other kind having natural teeth mounted on the plates, or very early examples of mineral teeth. One of the specimens presented by the President was particularly interesting, as showing very early mineral teeth mounted, not with the ordinary pins such as were employed nowadays, but with strips of platinum inserted in the substance of the mineral body, the strips being employed for the purpose of soldering to the teeth in the ordinary manner. Such things showed stages in the evolution of the manufacture of mineral teeth, and were especially interesting to any who might be trying to trace the history of such things. Mr. Morton Smale had sent a model taken from a patient who, at the age of 16, had two right mandibular molars extracted. In a letter written by Mr. Smale he said "the teeth were extracted because they were decayed and painful. It was possible, however, that the presence of the two supernumerary teeth, which were erupted immediately behind the second right mandibular bicuspids, in the substance of the mandible might have made the operation necessary. The position of the teeth was interesting, as was also the fact that they did not erupt until after extraction of the molars. The model gave support to the accepted view that teeth germs arose *de novo* from the epiblastic laminæ." A case came to the Dental Hospital about four years ago where a woman had a somewhat similar tooth, one close up against the posterior surface of the second bicuspid on the right side, and the other immediately in front of the left second molar. There was no first molar present on either side. Mr. Bennett mentioned that he was also fortunate enough to secure for the Museum a specimen that was intended to gravitate to another one. He thought it would be far more valuable in the possession of the Odontological Society than it would be elsewhere, and therefore he induced the gentleman who owned it to make them a present of it, and their thanks were due to him for his generosity. It was a specimen presented by Mr. Apperley, one of the students of the Dental Hospital, of a second right maxillary molar with a second bicuspid lying horizontally, with its roots between the roots of the second molar, the crown being directed forward, and lying in contact with the back of the root of the first bicuspid. The pressure of the tooth against the root of the developing and non-erupted first bicuspid had given it a somewhat bayonet-shaped appearance. Specimens of molars and bicuspids united by a false gemmination had often been seen, but he had never seen a specimen united in this way. The patient came with profuse suppuration, and the house-surgeon attempted to remove what he expected to be the first molar, and brought away with it the second bicuspid attached. The first bicuspid being very loose he removed that also, and found the position to be as shown.

Mr. Bennett also presented his Annual Report. He had placed on the table all the specimens presented during the year, and in addition showed some of malformed and damaged tusks, that were exceedingly interesting to those who were studying the subject of inflammation of the dental pulp. He urged any member of the Society who came across such specimens, either in the hands of ivory dealers or others, acquiring them for the Society, and he was quite sure the Society would be willing to purchase them for any moderate sum. They were exceedingly valuable in adding to the series of comparative dental pathology. The Museum now contained a series which no other museum in the world possessed, and year by year that series was growing. The members had a number of friends who were sportsmen, and who, from time to time, came across cases of hares and rabbits that had suffered damage from unskilful shooting or from traps, and he urged members to keep their eyes open to acquire such cases, which were always interesting and valuable. He also suggested that they should interest any sportsmen of their acquaintance going abroad to obtain specimens from the various countries they visited. The actual number of specimens presented during the year was twenty-five, but though small in number, they were very valuable. With regard to attendance, he was afraid the members did not take much interest in the Museum, for during the twelve months only seven members had signed their names. It was not, however, an extravagant and futile work keeping the Museum open, because of visitors there had been seventy-seven, and that was a very large growth on attendance in bygone years.

Mr. BRUNTON asked Mr. Bennett if he possessed in the Museum any specimens of Japanese dental work. He had one at home that he should be very glad to present to the Society.

The Curator said they had one specimen made of wood, as Mr. Brunton informed him was the usual way, but at the same time, as such specimens were rare and very interesting, he should be delighted to welcome the second specimen to the collection.

### ALTERATION OF BYE-LAWS.

The PRESIDENT read the Bye-law under which alterations of Bye-laws could be made, and stated that the amendment to be proposed had been brought before the Council and approved.

Mr. W. H. WOODRUFF then moved "That Bye-laws xxxii. and xxxiii. should be altered to read as follows :—

Bye-law XXXII. The President and Secretary, and two Members of the Society chosen by ballot or nominated by the President at the Annual Meeting of the Society, shall audit the accounts of the Treasurer to the end of the financial year.

Bye-law XXXIII. They shall make a written report to the Society, not later than the January Meeting following, regarding the state of the funds, and shall answer any questions relating thereto that may be put by the Meeting.

He thought the alterations would expedite business and that it would be more agreeable to the members of the Society to have the accounts presented nearer to the end of the financial year.

Mr. BADCOCK seconded the motion.

The PRESIDENT explained that the alteration was simply one making the audit of the accounts nearer to the end of the financial year than it was at the present time.

Mr. CANTON said that some time ago there was a talk about altering the financial year itself, and making it coincide with the year of the meeting. He did not know whether that point had been discussed by the Council.

Mr. ROBBINS said it was under discussion when the Presidential year was changed, but it was found that the difficulties were so great in connection with changing the financial year that it was thought better not to make any alteration.

The motion for the alteration of the Bye-laws was unanimously agreed to.

Messrs. David Hepburn and F. Canton were elected auditors for the ensuing year.

The following papers were read :—On Amalgam, by Mr. W. R. Humby, which is published on page 721 ; Further Notes on the Bacteriology of the Mouth, by Mr. Kenneth W. Goadby, which will be printed in our next issue.

# Dental News.

## ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

### PASS LIST.

The Examinations for the Diploma in Dental Surgery were concluded on 30th ult., with the following results :—

First Examination.

Of 20 candidates the following 9 passed the examination : John Galloway, Glasgow ; John Alexander, Liverpool ; James Atkinson Turnbull, Newcastle ; Reginald George Willson, Sittingbourne, Kent ; Robert Gavine Smith, Edinburgh ; Frederick Arthur Wilson, Sunderland ; Aleck Simpson Mackay, Hull ; Andrew William Kinnear Bramwell, Newcastle-on-Tyne ; and Samuel Weinstock, Russia.

Second Examination.

Of 15 candidates entered the following 12 passed the Examination, and were admitted L.D.S., R.C.S. Edin. :— Louis Anderson Dunn, Edinburgh, with Honours ; Adam Currie Reekie, Edinburgh ; John Walter Horne, Slamanan ;

Charles Frederick Turnbull, Sunderland; William Joseph Low, Lancashire: William Black Alexander, Edinburgh; George Hills Watson, Edinburgh; William Gerard Morgan, Edinburgh, with Honours; George Reginald Brittan, Plymouth; Campbell Hossack Baxter, Grimsby; James Craig Cameron, Brooklyn, U.S.A.; and Walter Ralph Leverrier, Bridport.

## GOLD WASTE IN MANUFACTURING ENGRAVED JEWELLERY.

At Clerkenwell County-court, on the 29th of July, before Judge Edge, George Evans, manufacturing jeweller, of 4, Upper Chadwell Street, sued Frederick Newton, dentist, of George Street, Hanover Square, to recover £13 16s., for a gold fusee-box and a sovereign purse made to defendant's order.

The defendant paid £8 into Court, and counter-claimed for the value of 15 dwt. of gold.

The plaintiff's case was that on September 5th, 1894, he made to defendant's order a gold sovereign-purse and fusee-box (combined), the defendant having supplied the gold. The articles were delivered to the complainant, who, at the time, made no complaint, but some time afterwards wrote to say that he had not ordered a combined fusee-box and sovereign-purse, but simply a fusee-box. Being an old customer, plaintiff offered to remake it, and to this the defendant agreed, plaintiff charging him only half the cost of re-making.

Defendant denied that he had ordered a combined purse and fusee-box, and claimed to have returned to him the value of 15 dwt. of gold lost in the making of the fusee-box.

Defendant—Isn't it true that only 1½ dwt. per ounce is allowed for waste, and that in this case there was lost about a third of the gold I supplied.

Plaintiff—That is not so. There is no fixed quantity; and considering the character of the engraving, which is deep and elaborate, the cost is not unreasonable. In any case, the gold lost in the engraving does not come to me. That is the engraver's perquisite, and the rule of the trade. If you give me an ounce of gold to be made up, I could not possibly account for the whole. Some of it must be lost in the polishing, and more in the engraving, especially, as in this case, when it is deeply cut and artistic. This fusee-box was made a second time, and necessarily, there was a further loss of gold.

Defendant—The sweepings of your shop come to a considerable sum a year?

Plaintiff—That is so, but the loss of gold from your fusee-box went to the engraver. That is his perquisite, and it is a well known rule in the trade.

The Judge—I am satisfied that the defendant ordered a sovereign purse and fusee-box combined. In the circumstances, the loss of gold is not an unreasonable one. There must be judgment for the plaintiff on the claim and counter-claim.

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

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British Journal of Dental Science

No. 735. LONDON, SEPT. 1, 1898. Vol. XL.

# FURTHER NOTES ON THE BACTERIOLOGY OF THE MOUTH.*

By Kenneth W. Goadby, L.D.S. Eng.

There is no region of the body more exposed to the advent of micro-organisms, unguarded from their entrance and adapted to their growth, than the mouth; in fact, at one time or another most known organisms may be found therein. The bacteria of virulent disease have frequently been observed even in perfectly healthy individuals, to be present in the oral cavity, organisms which, if transmitted to a susceptible person, would undoubtedly produce serious, nay, perhaps fatal results.

The perception and appreciation of these facts is one of most vital interest to all who practise dental surgery.

The most superficial and casual observer is at once struck by the fact that all mouths contain bacteria, although the numbers and species vary within wide limits and bear a distinct relation to the environment of the subject.

Notwithstanding the enormous variety of organisms that may occur in the mouth, there appears to be a distinct flora, flourishing most in uncleanly conditions and decreasing to but a few species in normal healthy mouths.

I have been especially interested in the bacteria which are to be found in unhealthy mouths, and whose biological characters have so far not been described.

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* A grant from the Scientific Grant Committee of the British Medical Association was made in aid of this research.

In the course of his investigations the writer has also been able to confirm the results embodied in a previous paper read before this Society.* In every case examined the writer has been able to isolate a streptococcus, identical with the one described, whilst other observers have isolated a similar organism, and a series of experiments has conclusively proved that the diplococci normally occurring in the mouth grew out into the streptococcus brevis when cultivated. Cover glasses were coated with agar and planted with the diplococci of the mouth, the preparation being so arranged that it could be examined microscopically. After incubation the diplococci were found to have developed into streptococci which gave the cultural peculiarities of streptococcus brevis.

Another observer states in the Bacteriological Report of the Clinical Research Association that he has been enabled to separate the streptococcus pyogenes by the cultural differences we described.

I have not at present made any further experiments on the pathogenic properties of the mouth streptococcus.

The favourite site for bacterial growth is along the gum margin and the spaces between the teeth, a condition no doubt arising from the accumulation of food, and the inability of the tongue to clear such places.

In patients suffering from gingivitis marginalis or from pyorrhœa alveolaris, enormous quantities of bacteria are to be found along the gum margins, and in the "pockets" in this region ; in fact, the white deposit (or materia alba of Leeuwenhœk) is simply a teeming mass of bacteria ; how any teeth resist this invading host is a mystery, many of them being acid producers and capable of liquefying gelatin.

The same condition, but in a lesser degree, occurs wherever tartar is present upon the teeth in any quantity, and where occurring locally, as on one or more upper molars, there a a corresponding increase of organisms takes place even in an otherwise healthy mouth. The removal of the tartar and the use of antiseptics restoring the part to a normal condition.

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* Dr. Washbourn and Mr. Goadby, *Trans. Odont.*, vol. xxviii., No. 8.

In the paper to which I have already referred, the case of a boy was cited, who tiring of the repeated cultivations made from his mouth, took to the use of a tooth brush, thereby despoiling us of a fruitful source of spirilla, and unhealthy conditions have not returned.

The removal of carious teeth and septic roots also rapidly diminishes the number of organisms present, and the author has found that often the only organism remaining is the streptococcus, although many species were present in the first place ; under these circumstances the practice of leaving roots in the mouth and covering them with a denture cannot be too greatly deprecated, whilst on the other hand the writer entirely agrees with Tomes that previous to the removal of such teeth, the application of antiseptics may do much to prevent local or general infection, which, though rare, does at times undoubtedly occur.

In all the unhealthy mouths the writer has examined (fifty in all) two organisms or types of organisms were found, viz., vibrios (spirilla and commas), and huge thick jointed threads, whilst besides these short motile bacilli are always to be met with. Before discussing these bacteria, however, it will be as well to say a few words about certain well-known organisms not peculiar to the mouth, but which are constantly to be found in it.

Chromogenic bacteria of many species are often to be found in the mouth, and invariably under diseased conditions of that cavity. Miller claims to have isolated eight different organisms producing a yellow colour, viz., B. fluorescens non liquefaciens (motilis), an organism commonly found in water.

Podbielskij, Rosenthal and others have noted this organism, whilst Mr. Pakes, of Guy's Hospital, informs me that he has often found it in cultures made from the mouth. Miller describes, or rather mentions, a "vibrio" which produces a green colouration which from the meagre remarks is probably the organism referred to above; the B. fluorescens in question is extremely motile and may have so misled the observer.

In all the mouths from which the author obtained this chromogenic organism the tartar was stained a greenish colour, whilst in two of the cases distinct green staining of the front upper teeth was present.

Miller's assertion that green staining cannot be accounted for by an organism which only colours the medium, and is itself colourless, is by no means in keeping with observed facts, especially when we consider the case of "blue-pus" coloured by the B. pyocyansus, and it seems perfectly reasonable to suppose that a bacillus growing along the necks of a tooth may diffuse its pigment over the tooth surface.

Staphylococci are another variety of organism constantly to be met with in unclean mouths, and of these the most common is the albus; in this my researches agree with Nettler; the other staphylococci, aureus and citreus also occur, the former being least common, and occurring in about 7 per cent. of cases.

Yeasts are almost always present, and the writer has several times obtained the rosa hefa giving a fine rose pink colouration.

A short motile bacillus producing a fine red colour has been obtained from five mouths.

*Morphology.*—Extremely short bacilli with rounded ends, often occurring in pairs and looking extremely like a diplococcus; a twenty-four hours' broth culture shows distinct motility, stains with usual aniline dyes; spore formation not observed.

*Biological Characters. Agar.*—Smooth raised streak, whitish with defined edge in forty-eight hours. Pinkish colour after three days, eventually becoming red.

*Potato.*—Slow colouration, seven to fourteen days; curious bright red, globular or bead-like colonies.

*Broth.*—Twenty-four hours, slight opacity, no marked turbidity; stringy precipitate with a faint red tinge in five days. Motile bacilli.

*Gelatin.*—Very slow growth, no liquefaction, but growth to bottom of slab, colour only at top; nail growth.

*Litmus milk.*—Grows fairly well, acid reaction in several days, generally seven to ten, colour eventually reduced; no clotting. Miller figures a red coccus, giving pigment aerobically only. Rosenthal also mentions a red coccus, micrococcus roseus, obtained from the mouth.

A great many other chromogenic bacteria are to be found in the mouth, but space does not admit of their further discussion.

Among the special mouth organisms none have attracted so much attention as those thread-like and filamentous forms unhappily grouped under the term "leptothrix," by Robin, Hallier, Vignal and many others, for no special reason apparently than that they exist in the mouth in thread-like forms. Miller, who was the first to recognise the inadequacy of the term leptothrix as applied to any thread-forming organism, and being unable to cultivate them upon artificial media, provisionally divides the filamentous forms of the mouth into three species, morphologically and according to their reaction with acidulated iodine, as follows:—

(*a*) *Leptothrix innominata*, thin wavy threads with little or no segmentation, and giving a yellow colour with acidulated iodine; (*b*) *Bacillus maximus buccalis*, thick, much jointed threads generally giving a blue colouration with iodine; (*c*) *Leptothrix buccalis maxima,* similar to (*b*) but with larger joints and giving no reaction with iodine.

This reaction to iodine can scarcely be considered a sufficient difference between a "leptothrix" and a bacillus, whilst if any bacillus which forms threads is to be *ipso facto* a leptothrix, then under this head come most known bacilli, and many if not most vibrios. Leptothrix is a term that should be used to express a species and not a morphological form. In Baumgarten's classification a leptothrix is described thus: Spherical, rod-shaped, or filamentous forms, the last showing a difference between the two extremities; spore formation not known. Cocci like reproductive bodies are formed by segmentation of the rod-shaped elements.

If we take a small portion of the white deposit from the gum margins of individuals suffering from gingivitis marginalis, or pyorrhœa alveolaris, and make a coverslip preparation, the slide invariably shows one or more of the thread-like forms noted above, and in making cultures from such cases I have succeeded in isolating a thick, heavily jointed organism, which grows out into long threads and appears to be the "leptothrix buccalis maxima" of Miller, if we are guided by the iodine reaction; but as the organism to be described is not a leptothrix in Baumgarten's sense of the term, the author has decided to reserve the term "Bacillus maximus buccalis" for this organism, a most decided bacillus and which, if labeled as a leptothrix, would only complicate the confusion extant in the nomenclature of mouth bacteria.

At first the writer had great difficulty in obtaining even an impure culture of this bacillus; many media were tried with no avail, although many interesting results were obtained in relation to the growth of mouth bacteria generally.

(1) Mouth bacteria grow best upon an alkaline medium;

a series of percentages of normal $NaOH$ were tried varying from ·1 to 20 per cent.; 1 per cent. gave the best results, so we now add 10 cc. of normal $NaOH$ per litre of broth, &c., after neutralisation.

(2) All mouth bacteria flourish best when the medium contains gelatin, so that broth made with shin of beef is better than broth from beef steak; and gelatin-agar better than agar.

(3) The addition of a small percentage of potassium sulpho-cyanide does not prevent the growth of many mouth organisms, the mouth streptococcus often growing in ·5 per cent. of that salt.

(4) The mouth streptococcus constantly outgrows other forms, and so on with many other minor points which would only weary you to discuss.

The first cultures of the bacillus maximus buccalis were obtained in the following way: (1) Broth was inoculated from a mouth direct, the cover-slip preparation showing the organism in question. (2) Cultures upon agar were made at intervals after the first three days, and (3) eventually plating from the impure culture obtained.

So far a pure culture has not been obtained by plating direct from the mouth, the organism in common with the spirillum presently to be described evidently requires some time to adapt itself to the new environment,

The above method is tedious, and better and more certain results are to be obtained by the method used for the spirilla. The organism occurs in all dirty and uncleanly mouths, and not infrequently upon the tonsil, although it appears to be present in the greatest numbers in mouths where a large amount of caries exists.

*Morphology.*—Thick jointed threads 1 to 1·5 $\mu$ broad, 10 to 20 $\mu$ long; some threads may be even longer than this, others curved and twisted, especially in old cultures on potato. The individual elements are 1 to 4 $\mu$ long but may be much larger, the ends are squarish or rounded ; it stains by Gram's method and by ordinary dyes. With carbolic methyline blue, red granules often appear. In old cultures (four to ten days) the threads stain irregularly, especially with carbo. meth. blue ; some of the unstained spaces appear to be vacuoles, others are highly refractile spores ; these spores stain a deep red by Moller's method.

A twenty-four hours' culture on broth or agar is motile, especially the shorter isolated segments which have a twisting and irregular motion ; some of the long threads are also motile and may move in a spiral manner. The flagella may be stained by Pittfield's method ; the maximum number appears to be six, two terminal and four lateral ; there are generally only one or two lateral or isolated bacilli in the threads ; I am not, however, quite certain as to the number of flagella.

The bacilli do not stain purple with Miller's iodine, although at times portions of the rod stain a faint blue. In old cultures the rods appear granular, and many large, irregular, oval or round involution forms occur.

*Biological Characters.*—Aerobic and facultative anaerobic, *i.e.*, grows both in presence and absence of oxygen. It quickly liquefies gelatin. (*a*) *Stab cultures* : a distinct cone-shaped liquefaction in twenty-four hours. No liquefaction in depths, but good growth to bottom of stab ; forty-eight hours lower parts liquefy. (*b*) *Streak cultures* : twenty hours, deep groove of liquefaction with whitish flocculi in liquid. (*c*) *Gelatin plates* : twelve hours, whitish grey, flat round colonies, 2·5 to 5 mm. wide, with slightly darker central spot when viewed by transmitted light.

Microscopically (1 in. obj.), irregular dentated edge, slightly yellow, with darker brown irregular centre with feathery edge overlying the outer and lighter part which contains irregular fibres.

*Agar.*—Twelve hours, brownish grey streak with regular defined wavy edge; with a pocket lens the surface is distinctly granular having the appearance of frosted glass—thick, easily scraped up with spatula. The bacilli grow out into long articulated threads.

*Broth.*—Twelve hours, granular precipitate with masses floating in fluid, no pellicle and little turbidity; twenty-four to forty-eight hours, more turbidity and precipitate, no pellicle. A pellicle may be formed later, three to five days, and on peptone water in about the same time. Hanging drop, mostly short thick bacilli distinctly motile but not excessively so.

*Litmus Milk.*—Twelve hours, distinct acid reaction, colour eventually reduced; no clotting in six days.

*Blood Serum.*—Twelve hours, slightly raised, moist, whitish growth; no further change in five days.

*Potato.*—Twelve hours, thick and well marked, moist, raised, greyish growth; twenty-four hours, brownish grey, hanging drop, motile. Soon forms spores.

*Spore Formation.*—In a twelve days' culture many oval or oblong highly refractile bodies may be seen, not staining with the ordinary dyes, and forming curious chains with the long axes parallel. On staining by Möller these bodies are stained a deep red, the bacilli blue. If some of the culture be suspended in broth and maintained at 70 to 75 deg. C. for half an hour the bacilli are destroyed but the spores are not and develop on agar streaks in the usual way. A five days' culture on peptone water gives no colouration with pure sulphuric acid, or on addition of sodium nitrite. No gas bubbles appear in gelatin shakes, whilst ·05 gm. per cent. of potassium sulpho-cyanide does not prevent growth.

Choquet has described three varieties of "Leptothrix

Buccalis" (*sic*) obtained from three different mouths of insane individuals, and, to quote his own words "whether the general condition favours the growth of 'the leptothrix' to the exclusion of other forms I leave others to say." He does not state if "the leptothrix" occurs in his own mouth.

In all unhealthy mouths, and especially in the early stages of pyorrhœa alveolaris, the writer has observed vibrios, of both comma and spiral form, these are the well-known *spirillum sputugenum* and *spirochæta dentum*, and which so far have resisted all attempts at cultivation.

The writer, after repeated endeavours, extending over a period of more than two years, and after many failures, has obtained a method by which these refractory organisms may be isolated, although at present it is impossible to say if all the spiral forms met with belong to the same species; so far, however, all the cultures obtained, twelve in all, correspond with one another in their main characteristics.

On the surface of alkaline potato gelatin the writer has obtained the spirillum five times from five consecutive cases. Three other cultures were obtained at an earlier period of the investigation, but as the method did not always prove successful it was thought better to defer the description of the spirilla until a method had been discovered whereby the vibrios might be grown with certitude. These conditions appear now to be fulfilled.

During the research many media have been tried, with varying degrees of alkalinity; media made with egg albumin as basis instead of meat extract, infusions of glands, saliva broth with different percentages of pot. sulpho-cyanide, mucin media made from snail mucin, vegetable juices, and many others. Three times a pure culture was obtained by the use of egg broth, made by adding four eggs to a litre of water, with 1 per cent. of peptone and lactose, and ·5 per cent. salt; the medium is then neutralised so that the albumin is converted into alkaline albumin in such a way that a slight trace of acid produces a precipitate. On this medium a slight growth occurred, and upon streaking on to saliva agar and then plating, a pure culture was obtained. The spirilla will grow also for a short time upon mucin gelatin (2 snails to 100 cc. water) but soon die out.

The potato gelatin is made by extracting one kilo grated raw potato witn a litre of water for two hours, and, after adding gelatin and boiling, two eggs are added (whites only), reboiled, neutralised, and 1 per cent. normal NaOH added.

On this medium the spirilla grow in conjunction with other mouth bacteria, among them B. maximus buccalis as mentioned above, and by adopting proper precautions a pure culture may be obtained. The method is the following: (1) inoculations from mouth direct on to slanted potato-gelatin, development is extremely slow. (2) After three days a second slant is inoculated from any minute pin's point colonies which show spirilla, if the second tube shows growth there is little difficulty in obtaining a pure culture; on the other hand, plating from the first tube is generally successful, the point to be remembered is that the organisms require time to accustom themselves to the altered conditions of surroundings, but if left too long may be exterminated by the development of other bacteria.

On the gelatin plates at the end of four to five days, minute, ill-defined, grey-white, moist colonies are to be seen, the hanging drop showing distinct spiral motion, but on staining, the spirilla are far from typical. Potato-gelatin streaks from these colonies develop slowly; in three days minute pin's-point colonies may be seen along the streak, even now these will not grow in the hot incubator. After a variable time, however, the growth is more pronounced, and on transference to agar at 22° C., a good development of beautiful spiral and comma-shaped forms appear at the end of twenty-four hours in the form of a whitish, raised, moist streak.

Potato-water, potato agar, and potato agar gelatin do not give such satisfactory results.

On boiled potato streaked from the mouth direct spirilla, as well as B. maximus buccalis, may be found at the end of twenty-four hours, but a transference to even potato gelatin does not give satisfactory results.

Large slices of potato in petrie dishes have also been tried with but poor results, it being extremely difficult to see the minute colonies on the surface of this medium.

From these results it will be seen that the organism is difficult to isolate, but may be obtained by the above method.

At one time the mouth commas were supposed to be the same as Koch's cholera vibrio, and Lewis, in the *Lancet* for 1884, advanced this view.

Klien also, in *British Medical Journal*, 1885, says the comma bacilli of the mouth have the same characters as cholera, but gives no details. Miller, in *Independent Practitioner*, 1885, describes an organism having the characters of the Finkler Prior vibrio. He also mentions one organism producing spiral forms, but does not even state if it was motile or not.

Nettler found the spirochaete dentum in the pus from a putrid empyema. The author has also found the same organism in the pus from a diffuse suppuration following the removal of an upper second molar; the mouth of the patient in question contained many spiral forms, and a few were to be found in the pus of the drainage tubes in the face which did not communicate with the cavity of the mouth. The spirillum cultivated by the writer has the following characteristics :—

*Morphology.*—Vibrio, occurring in young cultures as comma-shaped rods ·1 to ·3 μ in breadth, 1 to 2·5 μ long, with rounded, or pointed ends.

In older cultures growing into well-marked spirilla, some composed of commas united in series, others spirilla with four or five turns without a break, very long threads are also met with; these are often much thinner (spirochæta), the spiral forms are most common after forty-eight hours, and best marked on broth.

In old cultures curious swollen and twisted involution forms are to be seen; some of these are at the ends of the spirilla and commas, and present a similar appearance to the forms seen in the mouth itself, and not unlike flagella. Curious spherical bodies are at times to be seen in the course of the spirilla similar to the so-called arthrospores described by Hueppe in the cholera vibrio, spherical bodies are also to be seen with no spirilla attached. No endogenous spores have been observed. Stains with difficulty, best with carbolic fuchsin, or carbolic spillers purple, or by aniline gentian violet after treatment with alcohol.

In old cultivations the threads and spirilla stain badly and often have the appearance of chains of bacilli with an unstained interval between them.

It does not stain by Gram's method.

A twenty-four hours' broth culture is extremely motile, it often being difficult to observe under the $\frac{1}{12}$ in. lens in the hanging drop.

Upon staining by Pittfield's method, or by *night blue* a single terminal flagellum may be seen.

*Biological Characters.*—Aerobic. facultative anaerobic, motile, liquefying, spirillum.

*Gelatin Plates.*—At the end of forty-eight hours, minute greyish white colonies, very much like streptococci, moist, and flat. Liquefaction commences soon after.

*Microscopically* (1 in.).—Brownish, round, or slightly oval, not granular, with darker, irregular central area opaque,

Agar colonies similar, but less colour, and without darker area.

*Stabs.*—Cup-shaped liquefaction in four days, little fluid, the tube may often be inverted without the liquefied mass running out, white flocculi in liquid and at bottom. The rate of liquefaction varies somewhat in different specimens, and is as a rule longest in cultures recently isolated.

*Streak.*—Groove of liquefaction in three days.

*Agar.*—Good growth in twenty-four hours; greyish, raised, moist growth, with well defined straight edge, colonies may, however, be separate and form greyish, round, smooth, defined patches, eventually becoming confluent.

In *agar stabs* growth takes place to bottom of puncture but does not develop much; a film soon spreads over the surface. In three to six days a brownish buff colour appears in the central and thicker parts of the streak. In old streaks on agar the surface may be raised into hillocks, or be irregularly raised and wrinkled; the appearance on agar is extremely variable.

*Blood Serum.*—Twenty-four hours, brownish streak with slight amount of liquefaction. Forty-eight hours little change, liquefaction extremely slow.

*Litmus Milk.*—Twenty-four hours, well marked acid reaction, with well marked clotting in seven days, sometimes less.

*Broth.*—Twenty-four hours, general turbidity and slight trace of pellicle. Seventy-two hours, well marked pellicle. A four or five days' culture on broth or peptone water, gives well marked "cholera red reaction" with pure sulphuric acid.

*Potato.*—No apparent growth in twenty-four hours at 37° C. Two to three days at 22° C., well marked, rich red brown colouration, moist and shiny. Involution forms and threads often formed.

The writer has compared this organism with Koch's cholera spirillum, and those of Metchnikoff and Finkler Prior. It is not unlike them in many respects, but has important points of difference. Like the v. cholera and v. Metchnikoff, it gives a well marked cholera red reaction, which is not given by v. Finkler Prior, and although it liquefies gelatin, does not do so with such rapidity as the latter organism; in fact, in recently obtained cultures little or no liquefaction occurs. Slight liquefaction of blood serum takes place, more like the effect produced by v. cholera and v. Metchnikoff.

On litmus milk it produces more acid than v. Finkler Prior, and a clot is finally formed more like v. cholera and v. Metchnikoff. The appearance on broth varies but is not so rapid as either of the other three.

The growth on potato occurs at the ordinary temperature of the room, thus differing from v. Metchnikoff and cholera, and is more rapid.

The cultures I am passing round illustrate these points. From the foregoing results the spirillum the writer has isolated appears to be a distinct species, and must be regarded as such, but that all the spiral forms met with in the mouth belong to this organism alone is highly improbable, at the same time most of the commas and spirilla are to be referred to the spirillum described, the evidence adduced being certainly in favour of this view.

In summing up, the conclusions the author draws from the various results set forth in this paper are these:—The filamentous forms occurring in the mouth are by no means therefore leptothracæ, and one of them at any rate has been conclusively proved to be a bacillus capable of spore formation and thread production, whilst other bacilli which space

| Organism | Gelatin | Lit. Milk | Agar | Broth | Potato | Blood Serum | Colonies--Gelatin |
|---|---|---|---|---|---|---|---|
| Vibrio cholera | 24 hours, no liquefaction; 48 hours, liquefaction commencing | 24 hours, slight acid; 48 hours, marked acid; 7 days, clot | 24 hours, moist white layer, defined edge | 24 hours, slight pellicle, fluid slightlycloudy, 48 hours, more pellicle | 24 hours, no growth; 48 hours, no growth; 3 days, faint growth | 24 hours, yellow brown streak, slight liquefaction; 48 hours, similar | 24 hours, pale yellow, irregular, coarsely granular |
| Vibrio Metchnikoff | 24 hours, no liquefaction; 48 hours, liquefaction commencing | 24 hours, slightly acid; 48 hours, more acid; 7 days, clot | 24 hours, moist yellowish white streak | 24 hours, cloudy, with pellicle; 48 hours, more pellicle | 24 hours, no growth; 48 hours, no growth; 3 days, faint growth | 24 hours, yellow brown, slight liqufaction, 48 hours, similar | 24 hours, similar to v. cholera |
| Vibrio Finkler Prior | 24 hours, well marked liquefaction; 48 hours, large deep liquefaction | 24 hours, no acid; 48 hours, no acid; 7days, no clot | 24 hours, moist slimy layer, spreading over surface | 24 hours, cloudy, slight pellicle; 48 hours, more pellicle | 24 hours, no growth; 48 hours, no growth; 3 days,creamy yellow growth | 24 hours, well-marked groove of liquefaction; 48 hours, half liquefied | 24 hours, minutely granular, yellow and yellow - white, liquefaction |
| Spirillum sputugenum | 24 hours, no liquefaction; 48 hours, slight liquefaction | 24 hours, acid reaction; 48 hours, more acid; 7 days, clotting | 24 hours, moist grey - white raised streak, centre yellowish, defined edge | 24 hours, slight turbidity; 48 hours, more turbidity; 72 hours, pellicle; 9 hours, clear fluid, wrinkled pellicle | 24 hours, no growth; 48 hours, faint brown tinge; 3 days, well marked | 24 hours, brownish layer,slight liquefaction, 48 hours, similar | 24 hours, brownish, round and oval, not granular, with darker irregular centre |

prevents me describing, also produce thread-like forms. The B. maximus is also an organism whose relation to dental caries is important both from its power to produce acid and the ease with which it liquefies gelatin.

Spirillum sputugenum and spirochæta dentum are to be found in inflamed conditions of the gums, and especially in pyorrhœa alveolaris, these organisms being forms of one variety, whose cultures differ from other known spirilla, whilst the difficulty of obtaining pure cultivations is due to the reluctance with which the organism takes on a saprophytic existence, as well as the restraining influence of other organisms. Finally that both organisms though they may exist in healthy mouths, are present in most profusion wherever inflammatory and pathological conditions are found.

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# THE SHRINKAGE OF AMALGAMS.

By Thomas Fletcher, F.C.S., of Warrington.

The way this ancient bugbear still crops up is curious. The persons who waste their time on this subject have not yet been able to see that the greatest shrinkage of the worst amalgam is a drop in the ocean as compared with the damage done by alteration of form or so-called spheroiding, which occurs. One persistent experimenter, whose writings are well known, told me that one of the amalgams he tested had twisted so much, that he could not measure it, and instead of discarding it as worthless, he actually clamped it down in his mould, and gravely published the shrinkage. Any amount of reasoning would not make him see that, if an amalgam lost its shape after hardening, the publication of its shrinkage was not a matter of national importance. The most curious experience I have had of this kind was with a non-shrinking amalgam.

I engraved a monogram on an ivory box, with good anchorages, filled it with a non-shrinking amalgam, and polished all level after hardening. In six months this was "humped up" everywhere, although the anchorages held good. The amalgam was distinctly above the level of the ivory, and had apparently expanded upwards, but only at the expense of the sides, which parted from the ivory.

If an amalgam shrinks it will naturally shrink in all directions, and therefore, if a plug is inserted in a glass cavity, it will leak all over. It is very well known that this is not the case, the leakage occurs only near the top, where the amalgam is not confined, it is always worst at the top edge, and rarely, if ever, extends more than half way down in the worst cases. If it were shrinkage only, the leakage would be equal all over the sides and bottom of the plug. It is surprising that so well known a fact should not have led experimenters to consider the matter more closely, and to recognize where the weak point really is. The method of proving the change of shape was published by me in the B.J.D.S., some twenty-five years ago, and has never been questioned by anyone who has made any careful experiments. I have not the slightest hesitation in saying that a micrometer, as at present used, is of no more service than a penny whistle, for testing the working value of any amalgam.

If those who waste so much time on the shrinkage question, would devote a little of it to studying the retention of form, their work would be of some service. No shrinkage tests will give any idea of the actual value, and those amalgams which do not alter in shape are the only ones which are really permanent in the mouth.

# British Journal of Dental Science.

LONDON, SEPTEMBER 1, 1898.

## PHOSPHORUS NECROSIS.

The interest which has been aroused in the minds of the public from the fact of phosphorus necrosis having occurred in the match factories in the East End of London has resulted in the Government sending experts to examine and report on the French State match factories at Aubervilliers, Pantin, and Marseilles. Although we think that sentimentalists and sensation-mongers have proceeded to somewhat foolish extremes, and although it is an undoubted fact that some of the cases were due to the negligence of the employés themselves, yet we think that the enquiry was amply justified, and we hope it will lead to the stamping out of this avoidable and serious disease.

Dr. THOMAS OLIVER, one of the emissaries, has recently prepared a short report which has been issued by the Home Office. By it we learn that since the factories were taken over by the State, the prevalence of phosphorus poisoning has been very much reduced. At first the disease seems to have been of frequent occurrence, but in 1896 the French Government instituted a commission to enquire into the matter, and the result of their investigations has been to the great advantage of the worker. There is no doubt that the regulations in France are much more stringently carried out than has been the case in this country. With us, printed warnings on the factory walls have been deemed sufficient, the result being, at least in one case, that they were not read by the affected subject and so were valueless. In France, Dr. OLIVER says that the warnings to the workpeople have to be read aloud on the first Saturday in every month, and that the responsible officials are obliged to inscribe in a book for the purpose, the date upon which the readings took place. The rules are thus constantly impressed upon the workers, who can plead no excuse unless deaf. The rules in brief are, that no food or drink must be brought into the workshop, but must be left in the dining room; that before meals the working clothes must be doffed, the hands washed with soft soap and water, and the mouth gargled with a special gargle. The same routine must be observed before the workers are allowed to leave the factory. No one is allowed to be employed under sixteen years of age, and only then after having undergone a medical examination as to their freedom from organic and contageous disease, freedom from dental caries, and that they have been vaccinated. During the year 1897 out of the 575 workers employed at the Pantin and Aubervilliers works there has not been one case of phosphorus poisoning, although the methods of match making have not been altered, and although the ventilation in the "boxing" department was not as good as it ought to be. The ventilation of the "dipping" rooms, however, which of course is much more important, was found to be effective. Dr. OLIVER sums up the causes of the improved state of affairs as follows, viz., the raising of the age of admission, medical examination and subsequent supervision, systematic dental examination, improvement in personal cleanliness and immediate supervision on the first symptoms of illness; two-thirds of the patients' wages being allowed during compulsory absence from the works. Dr. OLIVER also says that the French Government is doing everything in its power to discover better methods of manufacture, and that a match free from phosphorus has been invented, though it has not yet been placed on the market.

We are glad to record that our Home Office had the wisdom to employ another expert, a dentist, Dr. GEORGE CUNNINGHAM, who examined and reported on Messrs. Bryant and May's Works, and the dental aspect of the disease. This resulted in his being commissioned to examine and report on other factories in which he is now engaged. Meanwhile he was sent to inquire into and report upon the French factories. We believe that Dr. CUNNINGHAM received the greatest courtesy and assistance from the French authorities in his important and arduous task, and we have no doubt, that, when his report is issued from the Home Office, it will be most interesting and instructive reading. We believe it is the first time on record in which our Government has requisitioned the services of a member of our craft, nor do we think that phosphorus necrosis is the only dangerous disease of occupation in which the services of a dental expert can be of benefit to the community. What has been done by the introduction of women in the business of factory inspection is now recognised as being of enormous value. Soon or later, the help of the dental expert will be regarded essential as the complement of efficient medical and hygienic inspection. Meanwhile we do not think we are too sanguine when we forecast the time when the State will be well and efficiently served by equally highly trained members of our fraternity in the various branches of the State services, military, naval, and so on. It also shows that our specialty is being recognised, and that the efforts which are being made to elevate it to its proper place will result in its being regarded with the same respect accorded to the other liberal professions. We congratulate Dr. CUNNINGHAM, the profession, and the Government.

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NEW SOUTH WALES DENTAL BILL.—The Dental Registration Bill of New South Wales has been sent to the New South Wales Legislative Assembly with a request from the Legislative Council that it may be taken up at the stage which it reached before the prorogation. The Victorian Dentists Act Amendment Bill is to be introduced into Parliament at an early date.

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AUSTRALIAN NITROUS OXIDE GAS.—In addition to making their own dentists, Australia is beginning to make its own $N^2O$, for an Australian Nitrous Oxide Gas Company has been formed and a complete plant for the manufacture of the gas has been imported. Operations have been commenced in South Australia, and distributing arrangements have been made for the colony of Victoria, but not as yet for the other colonies. The price will be lower than that of the imported gas, as the risk and expense of carriage as deck-cargo is avoided, while the cylinders will be of uniform size. Advance Australia!

THE DISAPPOINTMENTS OF A WORKHOUSE NURSE.—At a recent meeting of the Keynsham board of Guardians the chairman announced that the candidate whom they wished to appoint as nurse to the workhouse had withdrawn her application as there was no sea view at Keynsham. She was also disappointed because there was no tennis court for her use. Life is full of disappointments.

FUSIBLE METAL.—The following alloys will melt in boiling water or at a lower temperature :

| | Tin. | Lead. | Bismuth. | Cadmium. | C. | F. |
|---|---|---|---|---|---|---|
| Newton's | 3 | 2 | 5 | 0 | 100° | 212° |
| Rose's | 3 | 8 | 8 | 0 | 95° | 203° |
| Erman's | 1 | 1 | 2 | 0 | 93° | 199° |
| Wood's | 2 | 4 | 7 | 1 | 70° | 158° |
| Mellott's | 5 | 3 | 8 | 0 | 93° | 200° |
| Harper's | 4 | 4 | 7 | 1 | 80° | 180° |

DENTISTRY AT HOME.—"Othello's occupation's gone!" By a new invention of a Dr. Clarke, old and ill-fitting plates need not be taken to the dentist for remodelling. They can be coated with "Dr. Clarke's Rubber Oil Enamel," the result being that they "never fall down, it is said, even in sleep, or during the most exciting discussions; and by the use of it anyone afflicted with the loss of teeth may shout, sing, whistle speak, read, or if need be, cough, for hours together without any fear, so far as the upper plate is concerned, of air getting in between the layer of enamel and the palate." Among other virtues it corrects disagreeable breath, but we think that if it only confers the boon of allowing its patrons to whistle or cough for hours together it will fill a long felt want. Meanwhile we hope its use by the public will not send our readers into the Bankruptcy Court.

FINISHING PROXIMAL CEMENT FILLINGS.—Pass a thin piece of celluloid oiled, between the teeth, and after introducing the cement into the cavity, press the celluloid firmly over the cavity when the cement is fairly stiff, and hold in this position for a few moments. The oil prevents the cement sticking to the matrix, and the matrix gives the proper space between the teeth.

THE PROPOSED DENTAL SCHOOL FOR SYDNEY.—The proposal to establish a school of dentistry under the auspices of the Sydney University, and in conjunction with the Sydney Hospital, has recently been under consideration by the Board of the latter institution, and rules have been adopted by the faculty of medicine for the establishment of a proposed curriculum in dentistry. The question of providing for the practical instruction of students has also been discussed by the president of the hospital and the dean of the faculty at several interviews, and it appeared to them that the necessary accommodation at the Sydney hospital could be provided by finishing the building opposite the new pathological department, and over the basement which is already there. The rooms to be provided would be for extraction, for consultation, and for mechanical laboratory work, and these could be built in a short space of time, and at a cost of about £1000. In the event of this being determined, the practical work of the school could commence in the second year (the first year being entirely theoretical) in 1900. It was, therefore, thought desirable by the faculty for the hospital board to deal with the matter definitely at an early date. The president pointed out that the board had no funds to carry out this work, so it was agreed to inform the faculty that nothing further could be done until the Government provided the means. Dr. Graham thought it would be an easy matter just now to secure a promise from the Government, but the other members of the board smilingly dissented, and the president intimated that the attempt had already been unsuccessfully made. We are afraid that if Sydney waits for the Government they will not have their Dental School in a hurry. They should take pattern by the London Dental Hospital and join the " Helf Myself" Society.

THE DENTAL HOSPITAL OF LONDON.—We are informed that the difficulties which have for some time hampered the action of the Committee of Management of the Dental Hospital of London have been overcome and that the contract with the builder for the new hospital is now signed. The building is to be finished in twenty months, and the fact that definite arrangements have at last been made must be very satisfactory to Lord Kinnaird and Mr. F. A. Bevan, the trustees, and Dr. Joseph Walker, the honorary treasurer, who have worked very hard to attain this end. We hope that the public will help forward the work by donations and subscriptions. So far the dental profession has contributed £7000 and the public about the same amount, while some £30,000 are still required to discharge the liabilities incurred. The Dental Hospital has a distinct claim on public generosity over and above the value of its work. Mortgage had to be incurred when the buildings on the new site were demolished two years ago by the order of the London County Council, whilst the hospital lost a revenue of £1200 a year which sum the Committee of Management intended should accrue to help to pay for the new building.

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Vaccination and Beauty.—Two interesting letters have recently been published giving some reminiscences of what smallpox was before vaccination became general or compulsory. The Duke of Argyle writes to deplore the mania which has set in against vaccination, and attributes it to a " long immunity from disease, which has led to a discreditable and stupid forgetfulness of its cause. The highlands of Scotland in the last century used to be swept by the pestilence to a fearful extent. 'Decimation' is now inadequate to convey an idea of the effect on the population. Whole parishes were depopulated. All this stopped when inoculation came, and vaccination subsequently. No fact in history is more clearly established." The other letter is from Mr. Holman Hunt, R.A., who says that about the year 1862 he asked the veteran judge, the Right Honourable Stephen Lushington, what was his view of the relative beauty of ladies "seventy years ago" and in the passing day. Mr. Hunt said he asked the question not without some reserved recognition of the prejudice that lies ever in aged breasts for the glories of the days of youth. But the answer he got from Dr. Lushington astonished him. "Well," he exclaimed, "you can have no idea how it was that not more than one person in twenty was then undisfigured by traces of the smallpox, and this generally to such a degree that whatever beauty there had been was very seriously marred. It followed then that when a woman had escaped there was a disposition to regard her as a beauty for this cause alone, and if with this she had chiselled symmetrical features and good form of face and figure, too, the admiration of her amounted to worship. The difference I see now is that every lady we meet would have been a beauty in my early days."

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Increase of Cancer.—Mr. Roger Williams writes upon this subject as follows:—" In 1840 the proportion of deaths from cancer to the total number of deaths was 1 in 129, while in 1896 it amounted to 1 in 22. Mere increase of population will not account for this continuously progressive augmentation of the cancer death-rate, and it cannot be ascribed to improved diagnosis or other casual error. Moreover, I have ascertained that the increase has not been confined to one or a few parts of the body, but that it has involved them all—on the whole without any considerable disturbance of the normal proportionate localisation ratios. The cancer mortality for males from 1851 to 1890 has increased 167 per cent., the increase for females has been but 91 per cent. It seems to me probably that this undue incidence of the increasing cancer mortality in males may be ascribed to the fact that of late, as the result of urbanisation, the conditions of life for men have come to resemble more closely those for women than heretofore. Excess of food with want of proper exercise and changed surroundings, are, I think, its chief causative agents.

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LIQUID AIR IN MEDICINE AND SURGERY.—It was an Englishman who discovered how to produce liquid air, but an American has carried the investigation a bit further and now tells us how this discovery can be put to practical use, stating that in medicine and surgery its possibilities are vast. It is claimed that by means of this process air absolutely free from germs could be furnished in any amount, and if the stimulating effect of an excess of oxygen were desired it could be had without trouble quite free from the impurities which now make this gas so often objectionable. The temperature of hospital wards even in the tropics could readily be cooled to any degree prescribed by the physicians in charge, and by keeping the air about yellow fever patients down to the freezing point the nurses would be perfectly protected against contageon and the recovery of the patients themselves facilitated. Again, the cauterising cold which liquid air is capable of producing might be used in cases of cancer with great benefit as compared with nitrate of silver since while it absolutely destroys the flesh to which it is applied its action is perfectly under control and can be stopped in an instant. It is probable, also, that hay fever, asthma, and even consumption could be greatly relieved without change of climate by this pure, cool, germless air.

Death of the Reputed Discoverer of Nitrous Oxide Anæstaesia.—We learn with regret of the death of Mr. Gardner Colton, known in scientific circles for his discovery of anæsthesia by nitrous oxide. It is recorded that with its aid the first tooth was extracted painlessly on December 11, 1844.

A New Tooth-Brush.—A new tooth brush has been evolved by the inventive genius of a woman. The end of the brush is V-shaped with rows of bristles on each of the inner sides of the V. The object is to cleanse the inside of the teeth at the same time as the outside. Anything which tends to facilitate the cleansing of the inside of the teeth should be hailed with delight, as "out of sight" seems to be "out of mind" in this respect. Whether this brush supplies the adequate means we will not be bold enough to say.

How to take an Impression in Cases of Fractured Jaws.—Dr. Dorrance, of Michigan, devised a scheme for taking the impression which seems to me very good. He always takes it with plaster, regardless of the position of the parts. After the model has set he saws it in two at the point or points of fracture. He then adjusts the pieces in the position which he thinks is correct and vulcanises his rubber splint. By this method it is unnecessary to adjust the parts before an impression is taken.

# Abstracts of British & Foreign Journals.

## ON RESTORING CONSCIOUSNESS.

### By Dr. Bowles.

In all unconscious, comatose, or syncopal conditions, however subtle or obscure the cause may be, whether from accident or from disease, whether from concussion or compression, whether from alcohol poisoning or from drugs, whether from suffocation or from drowning, or from any other cause, we have a condition of (in a physical sense) practical death of the body; a condition in which the patient cannot lift a finger to avert impending death, so that, if he is to be saved, it must be done with the help of those around him; he is now as much subject to the force of gravity as the dead bodies upon which we experimented in the *post mortem* room, and if there are physical difficulties in the way interfering with respiration or circulation they must at once be removed. Anæsthesia is a condition essentially belonging to this category, but it is clinically often complicated by a mixed condition of syncope and apnœa, and it is by no means easy to separate the one from the other.

It is clear that in the syncope of anæsthesia the smallest interference with respiration is an instant danger, for to relieve lungs already surcharged with chloroform vapour we desire in the first place the expulsion of the noxious contents and to replace them with pure air. One's natural instinct is to fly to artificial respiration at once; but let us beware at such a moment of what a friend of mine calls "the vigour of fright."

In syncope the greatest care must be taken to avoid disturbance or pulling about of the body; if the ghost of a breath is being taken, wait and watch; a person nigh unto death wants very little air, metabolism is almost at a standstill, and as much air as the patient wants at that moment Nature will supply. If we wish to prevent the extinction of dying embers we do not violently disturb them by "poking the fire," or we dissipate heat, as so extinguish the spark that kept them alive. I have seen cases of illness in which it was certain that physical disturbance during syncope put the patient in imminent peril by calling on the heart for extra effort at a moment when that effort was impossible.—*British Medical Journal.*

# ARTIFICIAL EYES.

According to a German authority people wearing false eyes must be pretty nearly as common as the remainder of the victims collectively whom fate has deprived of a portion of their bodies, be it organ or limb. Every year, we are told, no fewer than 2,000,000 of glass eyes are manufactured in the German Empire and it is, of course, far from probable that the whole of the world's supply should be made in Germany. On the contrary in it stated in *La Médicine Moderne* that a single French firm turns out at least 300,000 glass eyes annually, and that there are several other factories in France the output of which is about the same. How, it will naturally be asked, can this enormous stock be utilised? Glass eyes although essentially brittle are little liable to injury, do not wear out quickly, and are quite independent of the vagaries of fashion. Once suited the owner of a glass eye may make it serve him a considerable time. A writer in the *Journal d Hygiene* is disposed to regard the oculiform millions as a fantastic creation, seeing that one eyed people are rare comparatively speaking and that the majority of them do not wear false eyes; but a little consideration should suffice to show the critic that his doubts are not well founded. Like many an objector he assumes the premisses—to wit, that all the eyes are used to replace human losses, whereas most likely false eyes of every description are included in the list. Evidently taxidermists, bird-stuffers, the makers of wax figures, etc., must use an immense quantity, to say nothing of the artists who are responsible for the innumerable army of dolls large and small. Viewed in the light thus thrown upon the matter the 2,000,000 which seemed to be so amazingly beyond the mark dwindle to a mere bagatelle—a mere drop, so to speak, in the ocean of false eyes. In this connexion allusion to the singular fact that it is only the one-eyed who seek to conceal their deficiency by means of a substitute may be permissible. The totally blind never wear false eyes, or if an instance now and then occur it merely serves to prove the rule. In consequence of his æsthetic sense a one-eyed man feels compelled to endure the discomfort which in greater or lesser degree attends upon every foreign body which has obtained lodgment in the human economy, but the man who has lost both his eyes is free from this weakness—his æsthetic sense expired along with his vision.—*Lancet.*

# CASE OF MEMBRANEOUS INFLAMMATION OF TONGUE AND MOUTH, WITH PRESENCE OF THE STAPHYLOCOCCUS PYOGENES AUREUS AND OTHER MICROCOCCI.

Mrs. J. H., aged 19, was admitted to the Sheffield Royal Hospital on December 31st, 1897, suffering from acute nephritis, during the course of which she developed well-marked double neuro-retinitis, with the history of which, however, we are not immediately concerned.

The first intimation of the oral affection came on the night of March 6th, 1898, when the patient complained of soreness of the right side of the tongue and cheek. In the morning the tongue was found to be distinctly, though not greatly, swollen, and more so as regards the right than the left half. A patch of whitish membrane, easily detachable, and leaving no ulceration, but merely a redness on removal, was seen about midway along the right border of the tongue. About the place where this would come into contact with the right cheek, was a similar patch. There was also a small circular patch about the size of a lentil on the inner surface of the lower right lip near the angle of the mouth. The breath was offensive, and there was salivation.

During the next few days the tongue increased greatly in size, the right half, however, always maintaining the lead. The patches became more extensive and spreading by continuity along the inner side of the anterior part of the tongue, and a similar patch keeping pace with this along the inner surface of the lip near the junction with the mucous membrane of the gum, the left border of the tongue was ultimately invaded. Salivation became excessive and the fœtor of the breath very bad. No patches were seen on the fauces ; there was no difficulty in breathing and no dysphagia.

About a week from the commencement the tongue had so swollen as to fill the whole cavity of the mouth, and projected between the teeth to the extent of three quarters of an inch or thereabouts. Movement of the organ very limited, and causing much pain. The swelling was firm and non-fluctuating. The patches increased in size, and became more dirty-white than heretofore, while at the tip of the tongue a patch became converted into a gelatinous-looking mass. To open the mouth was an impossibility.

The temperature, which was at first not raised above what was usual to the patient, now became somewhat heightened (remittent), but never reached above 101° F., which was on the fourteenth day of the affection. Externally there was considerable swelling about the face, especially of the lower lip, which was much thickened, and about the angles of the jaws, cheeks, and neck.

The affection having reached its acme, became stationary for a few days, when distinct improvement set in. The tongue diminished in size and the patches in extent. A view being again obtainable of the interior of the mouth, the hard palate was seen also to be covered with membrane, but the soft palate and fauces were clear.

On March 31st the tongue was wholly within the cavity of the mouth. Ultimately the glosso-stomatitis almost entirely cleared up, but the patient succumbed to her original disease.

Various remedies were tried. The measure having most influence for good was the application of sulphur freely to the patches, aided by a mouth wash of chlorinated soda solution. At its height salivation was most excessive. Dr. Alexander Anderson, to whom a portion of the membrane was sent for bacteriological examination, reports that he found no bacilli present, but two cocci in abundance—the staphylococcus pyogenes aureus and albus.

### Remarks by Dr. Hall.

The very distressing condition produced in this patient by the great swelling of the tongue, lips, and neighbouring parts, together with the perpetual flow of saliva, which poured out of the mouth in very large quantities, undoubtedly weakened her very much, and accelerated her death, although not the immediate cause. The attack followed upon a series of cases of "follicular tonsillitis," which had been occurring here and there in the ward during the few weeks previous, but none of which had been at all severe ; and I am inclined to think that the same causes were at work in her case as in the others. It is curious that in this patient the micro-organisms should have chosen an unusual site to commence, and further, that in spreading so extensively they should have never, so far as I know, reached the tonsils or fauces at all, for she never complained of dysphagia during the days when the disease was at its height, and it was impossible to examine the throat. The thick membranous exudation mentioned in the notes had the consistence of incompletely coagulated white of egg, and could be removed in large masses with great ease. As the tongue increased in size and filled the oral aperture, anything like adequate local treatment became very difficult, especially as any manipulation produced greatly increased flow of saliva. The local pain and discomfort, together with the sleeplessness, were more serious than any general toxic symptoms, which were indeed markedly absent. As to the diagnosis, there is no doubt that the mouth affection was set up by the local spread of micro-organisms, and from the report, for which I am greatly indebted to Dr. Anderson, of the City Fever Hospital, it would seem that the staphylococcus pyogenes aureus played the most prominent part. Why such an unusual position should have been selected I do not attempt to say, nor why it should not have extended backwards to the fauces. The reason of its very flourishing growth may, I think, be attributed to the diminished power of resistance on the part of the patient owing to acute nephritis.—*British Medical Journal.*

# ON A MODIFICATION OF MR. COXONS' METHOD OF PROLONGING NITROUS OXIDE ANÆSTHESIA DURING DENTAL OPERATIONS—

## Namely, by means of a Mouth Tube and Closure of the Nares.

By W. J. McCardie, B.A., M.B., B.C. Cantab.,
Anæsthetist to the General Hospital and to the Dental Hospital, Birmingham.

The recent endeavours to prolong nitrous oxide anæsthesia for the purposes of dental surgery by means of a mouth-tube, nasal catheter, or nose-piece have all tended to supply a very distinct need—viz., an anæsthesia longer that the usual one of about half a minute and perhaps not so long a one as that obtained so easily and safely by the administration of nitrous oxide followed by ether.

I believe that for all lengthy or severe dental operations, especially in cases where numerous teeth or many bad stumps have to be extracted or in cases in which the patient is very young or old or in feeble health and the operation is of more than ordinary severity, three or four full breaths of nitrous oxide followed by a short inhalation of ether is by far the best method of anæsthetisation, for the shock during and after operation is in these cases less than that occurring during or after the administration of gas. The delayed return of consciousness is often of distinct advantage to both the operator and the patient, and the anæsthetist is left with a freer hand to help the dentist, who for his part can with confidence reckon on having plenty of time and is not embarassed perhaps with anæsthetic appliances.

Last winter, at a meeting of the Society of Anæsthetists, Mr. Coxon, L.D.S., of Wisbech, demonstrated his apparatus for the prolongation of nitrous oxide anæsthesia. It consisted essentially of a mouth-tube made of hard metal with a diameter of about half an inch, at one end nearly half curved and at the other made to fit in the place of the face-piece and stopcock of an ordinary gas apparatus. Mr. Coxon warmed the gas before use by passing it through a metal coil immersed in hot water and interposed between the gas cylinders and the gas bag. In administration the patient was in the usual way put fully under the influence of nitrous ovide, then the face-piece was rapidly replaced by the oral tube, which was inserted into the mouth in such a way that it rested on the back of the tongue, and the free end was in the pharynx pointing towards the side of that cavity. The anæsthetist had of course to keep the tube out of the way of the operator and to arrange that a copious stream of gas was delivered from a fully distended gas bag and passed on to the pharynx beyond the region involved in the operation and also beyond any collection of blood in the mouth. Mr. Coxon stated that he had often used this method of his devising and had had exceedingly good results from it.

I was much interested in his demonstration and had a metal tube like his made for me, but not regarding the warming of the gas as of importance in short operations, at any rate, even if it be so in long operations, which I think doubtful, I made trial of the method without using any heating apparatus on many patients at the Birmingham Dental Hospital. As I preferred to keep the fullest command of the head and jaws and had to manipulate the gag I asked Mr. Thompson Madin, L.D.S., surgeon to the hospital, to kindly insert the mouth-tube for me and take charge of the gas-bag while I controlled the anæsthesia by means of the gas-supply.

The first few cases of trial were not very successful, but we soon became more proficient, and after a little time the great difficulty—that of inserting the tube to the back of the mouth and at the same time keeping it out of the way of the operator, especially in cases where the mouth was small—was dexterously overcome. We found that a central gag—e.g., Brunton's—wherever it could be used was the best. The gas-bag had generally to be kept fully distended and in the case of strong patients even had to be compressed between the arm and side of the body to increase the delivery pressure. It will be seen that a good deal of gas had to be used, for it escaped both by the mouth and the nose. I constantly for some months used this method in cases which needed a longer administration than usual and had a large measure of success. In many instances the duration of the anæsthesia was only determined by the conclusion of the operation. As the extractions were performed by students much longer periods of anæsthesia than usual were sometimes necessary and times of from one to four minutes were recorded without any untoward present or after effects being noticed except that giddiness lasted perhaps a little time longer than after the ordinary sitting. I judged of the degree of anæsthesia chiefly by the colour of the face, managing the supply of gas so that the patient's lips were kept slightly cyanosed and the breathing rather snoring in character. After the above method had been in use for a few months Mr. Madin ingeniously thought of the modification of closing the nasal passages in order to prevent the escape of nitrous oxide and to limit air entry. After closing the nose by manual pressure he proposed to pass the tube just inside the mouth at a corner and to keep it full of gas by using only a moderate pressure. He himself made trial of this plan with perfect success. As the closure of the nostrils by digital compression allows only one hand to be free I had a small nasal clamp made which might be fixed immediately after removal of the face-piece.

This modification of Mr. Coxon's method has been even more successful in our hands than the original plan, and with Mr. Madin's kind help I demonstrated its application at the annual meeting of the Central Counties Branch of the British Dental Association, held at Worcester on July 9th. Mr. Surman of that city being good enough to find a suitable patient. This demonstration very well illustrated the prolongation of anæsthesia by this modified method. The subject, a woman of ordinary type and about thirty years of age, needed the removal of eleven teeth, nine in the upper, and two in the lower jaw, including many stumps. After the insertion of a Brunton's gag between the jaws and in the middle line full anæsthesia was induced in the ordinary way by means of Hewitt's apparatus, and when the face-piece was removed the oral tube was quickly substituted for it and inserted by Mr. Madin into the corner of the mouth away from the operator, while I manually compressed the nares and allowed a stream of nitrous oxide to pass from a gas-bag kept moderately distended through the tube, endeavouring to merely keep the mouth full of the gas. An uninterrupted and perfect anæsthesia was obtained, characterised by slight cyanosis of the face and lips and by quietly snoring breathing. The mouth tube was so well manipulated that it did not at all embarrass Mr. Malcolm Knott, the dental surgeon, who was operating with deliberation, especially in the extraction of the last few teeth. The duration of operation was two and a half minutes, and after it had been finished the anæsthesia was prolonged for another half-minute for the purpose of further demonstrating the ease of maintaining it as long as might be necessary. During the latter part of the operation the Brunton's gag was changed for that of Mason. The operator would have done very well indeed to have extracted all the teeth in two ordinary sittings for gas.

This was a most successful case for a demonstration, the patient being well under throughout without movement of any kind, slightly cyanosed as regards colour, her breathing being easy and rather snoring in character. The operator was very pleased with the result. Recovery of the patient was extremely rapid and not marked by any untoward symptom—indeed, was exactly like that after the usual half-minute anæsthesia. The quantity of nitrous oxide used was about 48 gallons, and supposing that 8 gallons (which is perhaps a little above the average for an adult) were used in inducing full narcosis, then only 8 gallons were used for each extra half-minute of anæsthesia, a quantity which is considerably less than that used in the same time by Mr. Coxon's original method. For, supposing the nasal passages to remain open and manipulation to be going on in the mouth, there is a tendency for the patient, even in the case of mouth-breathers, to breathe wholly through the nose and the inhaled nitrous oxide is very largely diluted with air in the pharynx, while during expiration and the pause between expiration and the following inspiration there is free vent through the nares for the escape of the gas as well as of air. If the nostrils be blocked much gas is obviously saved, and as possibly some reflex hindrance (induced by the oral interference) to free respiration still exists, the breathing is for a short time at any rate quieter and less frequent, and if the mouth be simply kept full of nitrous oxide it can well be effected that enough gas is inhaled to maintain full anæsthesia, while it is diluted with a not too large quantity of air.

In suitable cases the duration of the anæsthesia may be determined only by the conclusion of operative interference. Where it is possible digital has an advantage over instrumental compression of the nares, in that it gives one more command over the head and can be applied very easily at any period of the anæsthesia, while it is sometimes difficult to quickly apply or reapply a clamp with one hand. One or two chief points for guidance in the use of this modified method have already been indicated, but the last and not the least remains to be noted and concerns the question of an assistant to the anæsthetist. In any dental operation where more than a few teeth have to be extracted under gas in the ordinary way a dexterous speed is necessary on the part of the operator, and it is often advisable for him to have an assistant who shall help him in the matter of sponging, handing instruments, &c., but if this method of prolonging anæsthesia be adopted the operator can take his time and do his own sponging and the assistant (if only three persons beside the patient be present) may help the anæsthetist, for it is a very great advantage to have someone to change the face-piece for the mouth-tube and if skilled to insert and manage the tube while the administrator concerns himself with more serious matters, such as the condition of the patient and degree of anæsthesia, the command of the head and jaws, the manipulation of the gag the closure of the nares, the gas supply, and watches that no blood or foreign bodies be allowed to remain in the mouth. The tube I use has an internal diameter of about ½ in., is made to fit my Hewitt's gas apparatus, and can be carried in the pocket The advantages of the method are obvious. It is extremely simple and adaptable, needing no cumbrous, complicated, or novel apparatus, and can be effectively applied to probably the large majority of patients who can take gas in the usual way, doing away with the need of many a second sitting for extraction, saving time and trouble to both patient, anæsthetist, and operator, and also perhaps sparing the patient the mental discomfort of anticipating a second administration. I use the modified method in most cases (at the Dental Hospital) requiring a longer anæsthesia than usual.

The disadvantage of the method is that it needs some practice on the part of the anæsthetist and also on the part of the assistant, if one be present, to successfully keep the tube out of the way of the operator. I do not think, as I said earlier, that for really long or severe dental operations the original method of Mr. Coxon or this modified one will or ought to replace the administsation of gas and ether, but both should hold a place midway between the ordinary gas inhalation on the one hand and the use of gas followed by ether on the other.—*Lancet.*

## PERFORATING ULCER OF THE MOUTH.

Letulle (*La Presse Médicale,* April 2nd, 1898) records an instance of this rare condition in an alcoholic man, aged 51, who presented fairly well-marked symptoms of tabes. The teeth in the left half of the lower jaw were all wanting except the central incisor, those on the right side being healthy. In the upper jaw there were only three teeth left, and apart from the persisting teeth the alveolar border was atrophied ; on the right side of the upper jaw there was a cavity involving the alveolar border and the hard palate, opening like a cone into the middle meatus of the nose. The mucous membrane lining it was pale, thickened, but not ulcerated ; its sensibility was much impaired. The patient was not aware of this condition, but on being questioned he said that liquid food had for five months come through the right nostril. This lesion is rare : Baudet has collected 8 cases chiefly on the subject of tabes. It may be unilateral or bilateral, but always occurs in the same situation. As to the explanation of the lesion, there are two views : (1) that of Galippe that it is the result of alveolar pyorrhœa aggravated by tabes ; and (2) that of Baudet that it is an atrophic tabetic lesion due to the fifth nerve being affected, which begins by loss of the teeth and atrophy of the jaws, and sometimes terminates by ulceration and perforation into the antrum. The decision between these theories must be left to the future, but probably a combination of the two would be most satisfactory. At present only one case has been examined after death, and that very incompletely.

## GRADUATED FEES.

### By Dr. H. A. Smith.

It is a mistake to suppose that a set of artificial teeth is a product that can be turned out in a given time and at a uniform cost. The truth is, that every set of teeth, especially a full denture, is more or less an experiment. There is, in the first place, the element of uncertainty as to adaptation. Next the idiosyncrasy of the patient must be taken into account, and then the sisters and the cousins and the aunts frequently have to be considered. Every experienced dentist knows that is often worth two or three times as much in money to make similar dentures for two different patients. Time and skill are the elements that enter into the value of productions of this character, and they should be paid for in proportion to their expenditure.

Is it in accordance with correct business methods to always charge the rich and poor alike? The inability of a class to pay for our services may be in a measure compensated for by asking an increased fee from the well-to do class. This is the custom usually followed in medicine and surgery and in the law. Even the minister expects a larger contribution from the rich member of his church than from the poor members, although the spiritual welfare of the rich and poor are of equal importance.

The immediate effect of the adoption of a gradation in fees in prosthetic work would be to bring up the quality of these operations. Opulent patients would receive our best efforts —that is, good working dentures in combination with the essential artistic features: while those less favoured with worldly goods would get from our hands good, practical work, with the artistic element not wholly left out, as now frequently is the case.

In order that the practice of prosthetic dentistry may be made compensating, both the dentist and his patient should be brought to realize fully the old familiar truth, "The labourer is worthy of his hire."—*Indiana Dental Journal.*

## AMALGAM AND CEMENT AS A COMBINATION FILLING.

By F. W. Knowlton, D.D.S., Akron, O.

The cavity is prepared in the usual manner, not depending wholly on the cement for holding the filling in place when there is any strain on the filling during mastication. If the cavity comes in close proximity with the pulp, a thin piece of asbestos paper cut the proper size and one side covered with an antiseptic varnish should be placed over the pulp, the varnish holding the paper in position and assisting to protect the pulp from any deleterious influence the cement might have on it. Place the powder and liquid on the glass slab and roll a small pellet of cotton very tight so there will be no loose shreds of cotton remaining. Mix the amalgam as usual and wafer a portion of it. Now mix the cement a trifle thinner than for a cement filling, and place a small portion in the cavity with the spatula, and, taking the previously prepared pellet of cotton in the pliers, spread the cement against the walls of the cavity with a single pressure ; if done quickly it will cover the cavity nicely and not stick to the cotton. Now place some of the amalgam in the cavity and with ball burnisher work the amalgam into the cement, at the same time working the surplus cement to the margins of the cavity, when it must be thoroughly removed with excavators so there will not be a particle of cement left exposed when the filling is completed. Fill the remainder of the cavity with the wafered amalgam, and finish as if it were an ordinary amalgam filling.—*Ohio Journal.*

**For Perspiring Hands.**—Borax and salicylic acid, of each fifteen parts ; boric acid, five parts ; glycerin and proof spirit, of each sixty parts. Apply with rubbing, three times daily.—*Dental Brief.*

# Reports of Societies.

## ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

The following discussion took place after Mr. Goadby's paper, which is published in this issue.

Dr. WASHBOURN said that, some two years ago, he had the pleasure of reading a paper before the Society upon some work relating to the bacteria of the mouth undertaken by Mr. Goadby and himself. At that time they paid special attention to the mouth streptococci, and they found it was possible to cultivate from every mouth a streptococcus which bore a close resemblance to the ordinary streptococcus pyogenes. On the epithelium of the mucous membrane of the mouth there was always present a large number of cocci, generally in the form of diplococci, and they surmised that these were identical with the streptococci which they were able to isolate by cultivation. Since that time Dr. Schmidt had shown quite conclusively that they were right in their surmise. He took scrapings from the mucous membrane of the mouth and made agar cultivations which he examined directly under the microscope. By watching the diplococci in the epithelial cells from day to day he was able to see them develop into streptococci similar to those they were able to cultivate.

When he and Mr. Goadby read their paper they were able to confirm the observations of Miller and others, that there were very frequently present in the mouth leptothrix forms and spirilla. The word leptothrix was not a good one to use, because the term was properly applied to distinct species of bacteria belonging to the higher forms. However, the term was often used, rather loosely, to imply a morphological form consisting of filaments.

At the time of the paper referred to they were unable to cultivate either the leptothrix forms or the spirilla: and they thought that they were dealing with anaerobic bacteria; but Mr. Goadby had since worked the question out very carefully and found that this was not the case. By careful cultivation Mr. Goadby had been able to isolate the spirilla and one of the leptothrix forms. One of the most interesting points which Mr. Goadby had brought forward was that the spirilla could be cultivated on the ordinary laboratory medium, but that they required some time to get accustomed to their new surroundings. This, no doubt, was the reason why others had generally failed to cultivate spirilla from the mouth even when they were present in large quantities.

The spirilla was a very interesting series of organisms, more especially because they presented themselves under so many different morphological conditions. That had been well shown in the case of the cholera vibrio. This vibrio, which usually occurred either as a comma or a spirillum, might, under certain circumstances, exist as a quite straight rod. On the other hand, it often underwent degenerative changes and produced peculiar spherical bodies similar to those described by Mr. Goadby in his paper.

Great interest attached to the question of the connection between the mouth spirilla and the condition which was called pyorrhœa. He could not help thinking that the spirilla must bear some very distinct relation to the causation of that disease. If that were so, it seemed to him to be important for Mr. Goadby to continue his researches and to test the pathogenic effects of the spirilla on animals; because by such investigations he might possibly obtain a serum of value in the treatment of disease. Mr. Goadby had spent an enormous amount of time and trouble on his observations, and had tried a large number of methods, and he seems to have definitely succeeded in cultivating both the filamentous organisms and the spirilla from every case in which he had been able to demonstrate their presence by microscopical examination.

Mr. F. J. Bennett congratulated Mr. Goadby upon his hard work and upon the success which he appeared to have obtained. He hoped Mr. Goadby would proceed further with the matter and eventually be the proud discoverer of the true nature of the pyorrhœa alveolaris.

The President echoed the sentiments expressed by Mr. Bennett and regretted that the hour would not permit of any discussion upon Mr. Goadby's very valuable paper.

## Valedictory Address.

The President: Nothing remains now, gentlemen, but for me to deliver to you a few remarks upon leaving this chair. My year of office having expired, the time has arrived when I must vacate the chair for my successor. I do not propose to deliver a formal valedictory address, which must necessarily partake of a retrospect of the papers and discussions of the past year, both of which are, doubtless, quite fresh in the memory of all of you. But before I leave this chair I should like again to express my appreciation of the honour you have done me in placing me in the position of President of this Society, and to thank you for attending so constantly at the meetings. I would also congratulate you on the selection of President for the coming year. In Mr. Fairbank you will have an admirable President, who, I feel sure, will uphold the reputation and the best interests of the Odontological Society. Last, though not least, I beg to express my most hearty thanks to the Council and Officers for their assistance and support, and would especially mention the secretaries, to whose labour the constant supply of papers and casual communications is chiefly due.

Mr. F. J. Bennett thought it would be out of order if the meeting terminated without proposing a vote of thanks to the President and office-bearers who were now about to take their departure.

Mr. Hepburn seconded the motion, which was carried with acclamation.

The President thanked the members for the vote ; and the thanks of the Society having been accorded to the readers of the papers and contributors to the museum and donors to the library, the Session terminated.

The next meeting will be held on the second Monday in November.

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Care in Trimming an Amalgam Filling.—With amalgam the greatest care should be exercised in shaping the proximal surface of the filling, and especially in trimming away all surplus amalgam from the interproximal space while the amalgam is plastic. If an excess of the material be allowed to extend over the cervical margin of the cavity till it becomes hard the operator will experience great difficulty in its removal, and the gum tissue will never remain healthy in a space partially filled with nodules of amalgam. All fillings at this point should be finished flush with the margin, and be made as smooth as the best skill will permit.—*Dental Review.*

# Dental News.

## ACTION FOR RECOVERY OF FEE AND FOR DAMAGES.

Mary Jane Jones, domestic servant, Rhyl, sued before the Rhyl County Court, Mr. Thomas Lukin, dentist, for the return of £5 paid for a set of teeth, upon the ground that the consideration had failed, and she also claimed £3 damages in respect of illness which was alleged to have been caused by the misfit of the teeth.

In detailing the circumstances, Mr .Roberts Jones, for the plaintiff, explained that in the course of the correspondence which had taken place the defendant had stated that he was prepared to alter the teeth, and that the plaintiff's gums had shrunk, a fact to which he had called the plaintiff's attention in the first instance when she consulted him. An endeavour had been made to settle the case out of court, and the sum of £2 had been practically agreed to, but no settlement had taken place.

The plaintiff said that a year ago she had suffered with her teeth, and acting on the advice of her mistress she consulted the defendant, who advised her to have her stumps extracted. She consented, and attended at his residence for that purpose on several occasions. Gas was administered twice, for which she paid 10s. 6d. each time. A number of stumps were extracted, and she arranged that defendant should supply her with a new set of teeth for £5, making £6 1s. in all. Some little while after the stumps were extracted the defendant sent for her and he took a mould of her mouth. He sent for her in about two weeks and told her that the teeth were ready. As soon as she put them in her mouth she found they would not fit, and told the defendant so. They seemed to be like a mountain in her mouth, but he said that they were always like that, and that she would have to be patient with them for two or three days. She tried to wear them, but found that the upper set dropped down from their place, and that the lower set rocked as well as turned in her mouth. Her gums were swollen and pinched, and she had to take the set out. She then went to see the defendant, who took the teeth down to his workroom, and returned them covered in powder She wore them again, and so long as the powder lasted they kept in their place, but she was ill and vomited through them. She again called at the defendant's place, and he gave her a card, which she took to a chemist, receiving in return a powder costing 6d. She was told to put that on the teeth every time they pinched. Altogether she went to see the defendant 12 times. When she kept on complaining the defendant took another impression of her mouth and made a new lower set, but she did not like the black colouring about the new ones. They went all right until she got home and had tea, and then they were as bad as ever: they did not fit. She went to defendant with a Mrs. Owen, and he was asked to return some of the money, but he declined, and told her that she could go to any dentist in town if she liked. Defendant had slammed the door in her face, while another time the servant said that Mr. Lukyn was having tea, but Mrs. Lukyn came into the passage and said he was out. After defendant had told her to go to another dentist she went to Mr. Edwards, and asked if he would alter the teeth, but he refused to do so, as he did not know what the black stuff was in the lower set. Finally hegave Mr. Edwards an order for a new set costing £5, and they fitted the first time she put them in her mouth, and she had not had any trouble since. She was always unwell and under the doctor when trying to wear the teeth made by defendant, but since having the new ones she was all right.

In cross-examination by Mr. Gamlin, solicitor acting for the defendant' plaintiff admitted that she had suffered a great deal with the toothache, and that it was necessary that all the stumps should be extracted. She denied that the defendant had told her that her gums would shrink, and that it would be necessary to alter the teeth later on. She went to see Mr. Edwards because defendant told her she could go to any dentist she liked. She denied that Mr. Edwards had either suggested or asked her to go to see Mr. Roberts Jones to put the case into court, or that he was at the bottom of it. She went to see her solicitor of her own accord. Mr. Edwards did not tell anything about taking proceedings.

Mr. Roberts Jones produced moulds of the plaintiff's mouth taken at different times, together with the rejected set of teeth. He suggested that if his Honour had any doubt as to the teeth fitting that he should see them in the plaintiff's mouth.

His Honour replied that he did not think anyone knew less about dentistry than he did. Fortunately for him he had arrived at his age without ever having had occasion to go inside the door of a dentist's surgery, so that it was no use asking him to judge whether teeth fitted or not.

Mr. H· Edwards, practising at 22, High-street, said that he had been a dentist for 25 years. He explained that plaintiff consulted him about the teeth supplied by defendant, and he found that they would not fit. The upper set would not fit the palate, and so could not be kept in their place, while the lower rocked in the mouth. The result would be that plaintiff vomited on putting the teeth in her mouth. It was true that the gums of persons who had had teeth extracted shrunk, but not the palate. Plaintiff asked him to alter the teeth, but he declined to do so, as he did not know what the under set was made of, and also because he did not care to alter another man's work. The teeth were too big for plaintiff, and he advised her to take them back to the defendant and to tell him that he (witness) said that they were too big and did not fit. He acted as a gentleman throughout, and did all he could to settle the case. He called for that purpose three times, and eventually he understood that defendant would give the girl £2. It was much against his will that he appeared against a professional brother, but he had been subpoenæd to attend. It was not true that he had induced plaintiff to to take proceedings against defendant.

In cross-examination, witness was questioned as to the shrinkage of the gums and palate, and concerning the time it was necessary to elapse before inserting teeth after others had been extracted. The witness said it was a matter of opinion and experience. He considered that several months should elapse before the permanent set was inserted, a temporary plate being made if a person was anxious to have the teeth at once. He did not alter the set because he felt that it would be better for defendant to do so. He also denied that he had induced plaintiff to sue defendant. It was not true that he had quarelled with defendant, or that he had induced an assistant to leave Mr. Lukyn and to come to him. His brother had engaged an assistant, who had been with Mr. Lukyn. He had never seen the black stuff before which defendant put in the lower set. Plaintiff had paid him £ , but it was not in order to secure the new order that he had refused to alter the first lot.

Mr. Gamlin contended that the moulds produced by Mr. Roberts Jones could not be relied upon, as they were taken months after those defendant made, and he argued that the gums and palate shrunk after teeth were extracted.

Defendant explained that it was necessary to extract all the stumps in plaintiff's gums, and that he told her she would have to get the teeth altered after the gums had shrunk. He was quite prepared at all times to alter the teeth, and instanced a case in which he had altered teeth 18 months after fitting them. He had been in Rhyl 14 years, while Mr. Edwards had only been there 18 months or 2 years. His whole family had been dentists for 100 years back. In fact he was a born dentist. (laughter.) The teeth were a perfect fit at first, and when he remade the lower set he used American vulcanite, which was most expensive, a recent invention, and guaranteed not to irritate. He had done all that was possible to meet the plaintiff, and would have altered the teeth at any time. He did not tell her that she could go elsewhere, and he denied having offered £2 to settle it.

In cross-examination, the defendant declined to say whether he thought that the last witness was at the bottom of the whole affair as suggested by Mr. Gamlin. He had not offered £2, nor had he asked Mr. Edwards to settle it for him. He called at Mr. Edwards' house because he was asked to do so. He did not agree that it was always necessary to wait months before putting in a set of teeth after extraction, as it was essential that they should be put in as soon as possible to preserve tha contour of the face.

His Honour said he could only deal with the case as it came before him, as he knew nothing of dentistry. It was clear to his mind that nothing altered so quickly as the face after teeth were extracted. The action was brought to recover a sum of money because the consideration had failed. That meant that it had failed entirely. In this case that was not so. The defendant supplied the teeth, but plaintiff contended that they did not fit. The moulds could not help him, as they were taken at different times, and he felt that he was bound to find for defendant, but it would be without costs.

## ACTION AGAINST AN UNREGISTERED PRACTITIONER.

A case under the Dentists' Act came before the notice of the Pontypridd stipendiary magistrate on August 17th. Mr. C. K. Charles, practising as a dentist in the town, was summoned by the South Wales and Monmouthshire Dental Association for using the word "dentist" and a combination of letters, without being registered under the Dentists' Act of 1878. Mr. Nicholas, solicitor, prosecuted, and Mr. W. R. Davies, solicitor, defended.

Mr. Nicholas, in opening the case, submitted a photograph of defendant's premises, which showed that over the door there were the words, "C. K. Charles, dentist." Mr. Nicholas then read Section 3 of the Dentists' Act—under which the defendant was summoned—which stated that a person shall not be entitled to use the name or title of "dentist" (either alone or in combination with any other word) or of "dental practitioner," or any name, title, addition, or description implying that he is qualified to practise dentistry. He (Mr. Nicholas) relied on the word "dentist," and the combination letters "D.D.S." or "L S.D." for a conviction.

Mr. Davies: "D.D.S.," "U.S.A."

Mr. Nicholas pointed out that the initials "U.S.A." had only recently—since the issuing of the summons—been put between the word "dentist" and the initials "D.D.S."

A lengthy legal argument followed, in which Mr. W. R. Davies contended that the defendant had not held himself out as being registered under this Act. The question was, as according to the summons, whether the words were used to imply that he was registered under the Act of 1879.

The evidence in the case was then proceeded with, and a man named Craft, a photographer, of Cardiff, was called. He spoke to visiting the defendant's place on the 27th of February. He knocked at the door, and the defendant opened it. Witness asked if Mr. Charles was in, and the defendant replied, "I am Mr. Charles." "Mr. Charles, the dentist?" witness asked, and the defendant answered in the affirmative. Witness walked inside, and had his teeth attended to by the defendant.

In cross-examination, the witness admitted seeing the certificate produced in the surgery. This certificate qualified Mr. Charles to practise as a dental surgeon in the United States of America.

Another legal debate arose as to whether this certificate was evidence.

Mr. Davies contended that it was, and instanced the prosecution of Dr. Bridgewater at Cardiff, in which that gentleman's diploma was accepted by the Cardiff Stipendiary as being evidence. As in this case, so it was in Dr. Bridgwater's case a question of whether Dr. Bridgwater held a diploma from the United States and held himself out as being a registered practitioner of this country. The court held that he was qualified, but did not so hold himself out, and the case was dismissed.

Mr. Charles not being a competent witness, no evidence as to the diploma was given.

Mr. W. R. Davies continued to argue that the defendant did not use the name of dentist "thereby implying that he was then duly registered under the provisions of the said Act," when

The Stipendiary announced that he held the same view, and dismissed the case. The summons was wrong.

Mr. Davies applied for costs, and they were allowed.

Mr. Nicholas here remarked that, as the summons had fallen through as a result of a technical objection, he would take out another summons to be heard on the following Wednesday.

Mr. Davies said that day would not suit him, and asked their worships to fix the day of hearing at such a time when the Act recently passed in Parliament would come into force, and so make the defendant a competent witness.

Mr. Nicholas sharply replied that he would take the summons out when he liked, and added that he would take the summons out for next Wednesday, whether it suited Mr. Davies or not.

## DEATH UNDER CHLOROFORM AT CHORLTON.

An inquest was recently held by Mr. J. F. Price, county coroner, at Chorlton-cum-Hardy, on the body of Arthur Williams, a commercial traveller, aged 28, who lived at Chorton-cum-Hardy, and who died while under the influence of chloroform which had been administered him for he purpose of extracting a tooth.

Mr. Arthur H. Derwent, licentiate dental surgeon, residing at Grosvenor House, Wilbraham Road, Chorlton-cum-Hardy, said the deceased consulted him on Tuesday morning. He found he was suffering from a very large abscess at the root of the right lower wisdom tooth. The swelling was so great that he could only open his mouth a quarter of an inch. Witness advised him to have the tooth removed, and to have chloroform administered, that being the only anæsthetic that would relax the tissues so as to enable them to force the mouth open to get at the tooth. In his opinion the pain would have been so great that it would have been impossible to extract the tooth without chloroform. He suggested that Dr. Mumford should be called in, and witness agreed. Witness and the doctor went to the house where deceased lodged between five and six o'clock that day. The doctor carefully examined the deceased's face with the view of first reducing the swelling and removing the tooth a few days later, but afterwards he concurred with witness that the best course was the immediate removal of the tooth. Deceased consented to the use of chloroform, and before it was applied the doctor examined him carefully. The witness gave some details of the death.

Mr. G. Harrison (a juror) asked the witness whether it was his custom to take upon himself the responsibility of recommending chloroform, particularly in the case of a nervous man like the deceased, and when he did so recommend it did he explain the serious consequences that might ensue? Witness replied that in a case like this he was justified in recommending it, as no other drug would have done.

Do you consider it is really in your province as a dentist to tell a man he will have to have chloroform? I think so.

The Coroner: What he said was if he wanted the tooth out he would have to have chloroform.

Witness; I recommended it on the understanding that he was to be passed by the doctor first.

Mr. Harrison: Do you explain when you recommend chloroform that it is possible the patient may not come out of it?

The Coroner: I don't think he would be very wise if he did.

Mr. Harrison: There is a large number of people who do not know the nature of chloroform.

The Coroner: I should think there are very few who don't know the danger.

A juror remarked that the proportion of deaths under chloroform was very small—about 1 in 1,900.

Witness; I think it is one in three thousand.

The Coroner: My experience is that these cases are much more common than they were. This is the third case I have had in twelve months.

Dr. Mumford, practising at Chorlton-cum-Hardy, said he went with the last witness to see the deceased. The latter told him that he had been ailing since June 12. He was suffering from extensive inflammation of the tissues of the neck and jaws on the right side, arising from an abscess. On account of the extensive nature of the swelling and its position he told the deceased that the tooth could not be extracted without the use of an anæsthetic. He replied that he (witness) was to do what he considered right. Witness examined deceased's heart and respiration. Tho heart was healthy; the respiration was impeded by the obstruction in the throat but otherwise it was good. Witness administered the chloroform by sprinkling it on lint and then holding it about an inch from deceased's nose. All went well for some minutes. Suddenly the deceased sat bolt upright, changed colour, and his pulse stopped. Witness at once put his hand on the heart, but could not feel that it was beating. He applied artificial respiration and hot cloths to the heart, but all without avail. Just then he noticed that the abscess had gone down, and he formed the opinion that it had discharged inside.

The Coroner: What would be the effect of that upon him?—It would cause a sudden shock.

Do you think he has died from the effects of the chloroform?—Yes, either directly or indirectly. I don't think it possible that he was choked by the discharge. I was fully of the opinion that it would be safe to give him chloroform, the action of the heart being vigorous. I didn't tell him there was any danger. To have done so would have increased the danger.

By a Juror: I take the full responsibitity for the administration. It is on my shoulders; it is not on Mr. Derwent's.

The jury returned a verdict of death from misadventure. They were satisfied that the deceased consented to the administration of the chloroform, and that it was skilfully applied.

Good oxyphosphate ought to last for years if of good quality and properly used. Early crumbling and wearing away is evidence of bad material. It is true, the condition of some mouths are inimical to the best, but this is infrequent. Hot paraffin is one of the best coverings, while the cement is setting. Be sure to thoroughly cover the cervical walls.—*Dental Brief.*

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2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
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6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

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British Journal of Dental Science

No. 736. LONDON, SEPT. 15, 1898. Vol. XL.

# DENTAL MECHANICS.

By Harry Rose, L.D.S. Eng.

## Part IV.—Appliances and Devices for the Correction of Dental Irregularities.

(*Continued from page* 301).

Besides the manifold cases of Dental Irregularities that yield to one form or other of Mechanical treatment, we sometimes find ourselves face to face with such an abnormal condition of the Dental Arches and teeth that even the most ambitious among our number would shrink from undertaking on the ordinary lines, the chances of even a partial success being too

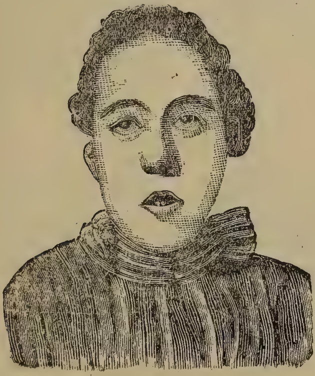

Fig. 45.

remote to justify a long course of treatment by one or other of the methods usually adopted. It is to two or three of these cases, that attention is now directed.

The first is that of a girl about nineteen, who was brought under my notice by my friend Dr. Percy Jakins, who had been treating her for some throat mischief, deafness, indigestion and various ills arising in a measure it might be assumed from the terrible condition of her mouth. On looking at Fig. 45 it will be seen that the patient's mouth is partly open; she could not close it any more. The next condition is apparent by looking at Fig. 46, this shows the state of affairs in the mouth, all the teeth being practically functionless, and so far as one was able to judge could not be rendered otherwise by conservative treatment.

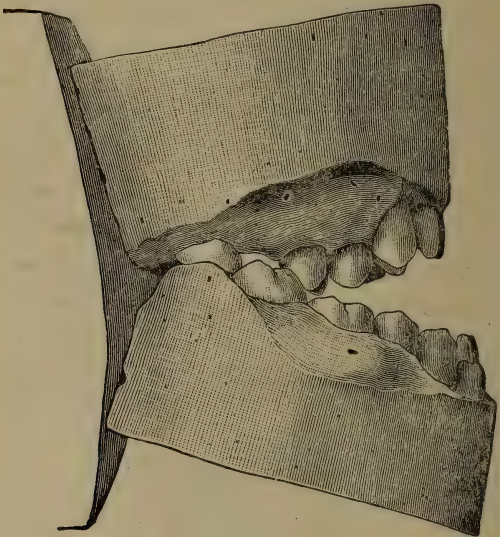

Fig. 46.

When dealing with these conditions of the teeth, one has to consider first, if when the teeth are extracted the patient would be able to wear artificial substitutes with comfort, and secondly, one has also when preparing the mouth to leave no loophole for failure, by being tempted to leave in the mouth teeth that might interfere with a successful result. It is only natural that one should wish to preserve as many of the patient's teeth as possible, but at the same time if the denture that one has to construct is not a success, then the last condition of that patient is decidedly worse than the first.

In order to see if there was the least chance of utilising any of the teeth, the molars on each side were removed under gas, this had the effect of giving a little more play to the jaws, but the amount of approximation obtained was not sufficient to justify one in abstaining from the removal of the whole of her teeth, which operation was performed under gas and ether. In less than three weeks the patient was able to wear a temporary set, and masticate her food fairly well, and also to close her lips together comfortably as seen in Fig. 47.

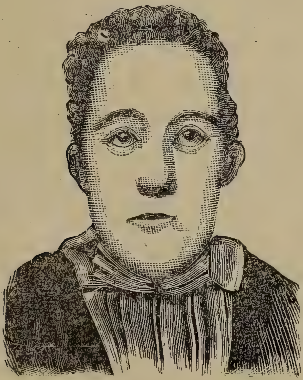

Fig. 47.

At the end of six months permanent cases were made and she could then use her teeth well in every respect, and her health had considerably improved.

*To be continued.*)

# British Journal of Dental Science.

LONDON, SEPTEMBER 15, 1898.

## THE NEW SESSION.

In our present issue we, as is usual at this date, furnish al the information required by those who contemplate entering the Dental Profession. Some are commencing their pupilage in Mechanics, and doubtless are aware that those who register as Dental Students after January 1st, 1897, have to pass three examinations for the Diploma of the English College. The first, the "Preliminary Science," consists of Chemistry, Physics and Practical Chemistry, and is identical with the examination required of medical students in those subjects. It may be passed before the candidate has entered at a Dental School, and pupils will do well to negociate this first fence whilst serving their apprenticeship. For those who are intending to become pupils of a dental practitioner not residing in a place where instruction in the three subjects can be obtained it is well to remember that it can be taken prior to registration, that is, previously to leaving school. This seems an important point which may be overlooked, and for this reason we draw attention to it.

In regard to the three years' instruction in Dental Mechanics, we understand that the Manchester School may now be added to the other Institutions which make provision for the reception of pupils in this subject; and we presume that the third year can still be made to overlap the first of the two years' hospital practice. In this way those who do not commence the Mechanical pupilage until after registration are able to compress three years' pupilage and two years' studentship into the four years required from the date of registration before the candidate can present himself for the final examination. We have not heard much complaint on the part of the practitioner out of reach of a dental school that his pupils are disadvantageously placed, but we have occasionally heard laments from provincial pupils that they had to wait five years instead of four. It seems only right that dental schools should make provision for the instruction of the full curriculum under the same roof, and we may expect that this method will be adopted by all of them before long. Of course there is nothing to prevent the private practitioner continuing to take pupils for the three years' training, but the competition of the Schools will by-and-bye lead to the necessity of workshop teaching being made thoroughly efficient. The slip-shod method occasionally resorted to will die out when tested by the modern examination, and the practitioner will probably be made aware of his serious responsibility when he undertakes to give a pupil proper instruction in return for the premium.

To the student entering hospital we would recommend a steady course of work throughout the two years. It is a fatal mistake to think matters may be taken easily at first, and that a spurt towards the finish will suffice. And we would also suggest he should turn a deaf ear to the opinion sometimes advanced that Lectures are a waste of time. The auditory road to the brain is an important one. He will naturally not rely altogether upon the lecture; indeed it is a good plan to read the subject from a text-book in advance. The principle headings of the lecture should be noted, the diagrams well studied, and the details elaborated in the note-book afterwards. In this way the facts presented will be reliably registered in the mind by a combination of ear, eye, and hand.

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ANOTHER DEATH UNDER CHLOROFORM.—Mr. Hoyle, the Newcastle coroner, recently held an inquest at the surgery of Dr. T. C. Campbell, dentist, Granger Street, Newcastle, on the body of Magnus Gear, 29 years of age. The wife said her husband was of temperate habits, and enjoyed good health, but during the last few days he had suffered from neuralgia. Dr. William Slater stated that he was called in on Tuesday to see the deceased, who was suffering from neuralgia, depending upon bad teeth, and advised him to go to Dr. Campbell's. Deceased went next day, and Dr. Campbell extracted a tooth without any anæsthetic. Deceased made up his mind that he would have chloroform before any more were removed. Yesterday he met witness at Dr. Campbell's surgery, and the examination having proved satisfactory, witness administered a small dose of chloroform. Dr. Campbell had finished extracting the teeth, when deceased gave a long sigh. Witness anticipated danger, and every means were taken to restore animation, but without effect. Death was due to syncope. The Jury found that the deceased died from syncope while under chloroform, and were of opinion that the anæsthetic was necessarily and properly administered. With the first part of this opinion we cordially disagree, as we consider that chloroform is not only unnecessary, but highly dangerous for dental operations.

THE USE OF SILVER NITRATE.—Where the cavities are not in an exposed position a fifty per cent. solution of silver nitrate may be applied to the cervical border of mesial and distal cavities in molars and bicuspids, and will do much toward preventing decay at that point. By means of a few shreds of cotton on a broach it may be applied without staining any other portions of the mouth.

THE DENTIST'S REVENGE.—According to the *Daily Telegraph*, Parisians are being greatly diverted by the story of a misadventure which is said to have befallen a gentleman who had been paying his addresses, with what success will be presently seen, te a lady who had fascinated him by her bewitching appearance on a bicycle. He had noticed her in his frequent excursions on his motor-car in the neighbour hood of this city, and being deeply smitten by her attractions had followed and made enquiries about her. The Vicomte had ascertained that she was the wife of a dentist in practice here, but this discovery had not had the effect of cooling his ardour. On the contrary, he had pursued the bicycle and its fair rider with more zeal than ever, until one day he availed himself of an opportunity to enter into conversation, and was informed, to his infinite delight, that he might call. Day after day he paid a visit to the object of his admiration, always selecting the moment when her husband happened to be away from home. At last, however, he became so pressing in his attentions that the lady grew alarmed at her imprudence, and promptly confided her adventure to the partner of her joys and sorrows; who, quite understanding the position in which she had thoughtlessly placed herself, sat down to concoct a little scheme of revenge. The next time that the gentleman put in an appearance he was admitted as before, but he had scarcely begun to pay the usual compliments when the husband walked quietly into the drawing-room and blandly asked whether the visitor had not come for a consultation. Fancying that he saw his way very neatly out of the scrape, the Vicomte replied that one of his teeth was giving him a good deal of trouble, and soon he was closeted with the dentist in the operating room. A glance into the mouth of the extemporised patient revealed the fact that there was not the slightest cause for a tête-a-tête of this kind, but a perfectly sound molar having been pointed out to him as the offender, the dentist, rising to the occasion, declared that it was beyond a cure. A moment later there was a sharp cry. "Well! that did not take long to do. My fee is 20f," the operator calmly said. Paying the money, the Vicomte bolted out of the house a sadder and a wiser man, and soon afterwards peals of merry laughter were ringing in the drawing room which he had entered with a triumphant air only a few minutes before. Such is the story, and people are smiling at it without searching very closely into its details.

# Dental News.

## PROSECUTION UNDER THE DENTISTS' ACT.

At the Louth Borough Police Court before the Mayor, Alderman John Taylor, on the 8th inst., Herbert Manning, 86, Upgate, Slough, was charged for that he, not being a legally qualified dental practitioner did use the words "Dental Institute," implying he was registered under the Dentists' Act, 1878, on the 16th of August; and also that, not being registered under the Dentists' Act, 1878, did use an addition, viz., "15 years' experience in modern dentistry," implying he was a person specially qualified to practise dentistry.

Mr. W. Haddon Owen appeared for the defendant and pleaded not guilty.

Mr. R. W. Turner, barrister, appeared for the prosecution on behalf of the British Dental Association, and he briefly stated:—The Dentists' Act of 1878, as amended by the Medical Act of 1886, declared that no person should be allowed to take or use the title of dentist either alone or in combination with any other, or any name, title, or description, implying that he was registered under the Act, or that he was a person specially qualified to practise dentistry unless he was registered under the Act. Section 26 of the Medical Act 1886, declared that the words "title or description," where used in the Dental Act of 1878, implied any addition name, or description. The words "specially qualified" had already received a legal interpretation by the High Court of Justice, Queen's Bench Division. There was an act called the Veterinary Surgeons Act, 1881, which laid down the law with reference to veterinary surgeons in almost precisely the same terms as was the case with dentists. A man was charged under that Act with using the title or description ,' Veterinary Forge," which the Bench would see, as in the present case, was using a description not applicable to the person but to the place where he carried on his practice. The Judges said the Magistrate was wrong in refusing to convict, and Justice Hawkins said it was true that the man did not profess that he had himself any veterinary skill. The defendant in the present case did say that he had, because he said he had had 15 years' experience of modern dentistry and was capable of regulating other work where dentists had failed. No doubt, therefore, he held himself out as having qualifications, although that was not necessary to constitute an offence. Justice Hawkins continued: "No one seeing the words 'veterinary forge' could fail to come to the conclusion that he was carrying on a business which in fact he was not qualified to carry on, and that seems to be a case which the Act was expressly intended to apply to." Under this Act there was no need to prove fraudulent intention, all that it was necessary to prove being that he was using a title or description implying or stating that he was specially qualified. Justice Wills also said he was of the same opinion, and that he had no doubt the words did imply that persons taking horses to the forge would get the benefit of veterinary skill, which was what the Act of Parliament was intended to stop. In the present case Mr. Turner remarked, the obvious impression which people would get from the defendant having placed the words "Dental Institute" in large letters in front of his house, and also from his advertisements, would be that they would get skilled advice and treatment there; and therefore the defendant was not entitled, not being on the Register, to hold himself out in that way. The defendant advertised that he had had 15 years experience of modern dentistry—and if that was not holding himself out as a person specially qualified to practise dentistry, he (Mr. Turner) did not know what was. The defendant also stated that he had been for years with Mr. Washbourn, L.D.S., Mr. Cutriss, and Mr. Saunders, L.D.S., but he was using their names without their consent, and it was not their wish that they should be so used.

Mr. Turner said defendant had also published a testimonial from the Mayor of Doncaster, who, however, said he gave it as a private one and requested its withdrawal.

Mr. W. F. T. Brown, managing clerk to Messrs. Bowman and Curtis-Hayward, solicitors to the Association, said that on the 10th of August he called at 86, Upgate, Louth, and on the outside of the premises, attached to the front, he saw a large board bearing in gilt letters, the words "Mr. H. Manning, Dental Institute," and the board was still there. The room into which he was shown had all the general fittings of a dental operating room.

Mr. Owen said without any disrespect to the Association, it was nothing more or less than a trade Union, and Mr. Brown in the excess of his zeal had rather put a fringe of embroidery on the real facts of the case, with the object, Mr. Owen thought, of creating a prejudice in their worships' minds against Mr. Manning, which the actual facts would hardly justify. He (Mr. Owen) had shown that there was nothing derogatory to Mr. Manning with reference to the testimonial, and there was no evidence in support of the suggestion that the three distinguished gentlemen mentioned had requested their names should not be used. So far from that being the case, Mr. Manning was on the best of terms with them, and had letters from them discussing professional subjects. This was a criminal prosecution, and it was incumbent upon the prosecution to clearly prove both the law and the facts, otherwise it was very easy to bring out two summonses so as to catch a man on one side if they could not on the other, and to bring up cases where other magistrates had convicted, and he had no doubt that with a little industry he might have found cases where magistrates had decided differently. But that was not the law of England, and, although a case had been quoted which had been before the Queen's Bench, that action was taken under an entirely different Act of Parliament. It was therefore necessary to prove that the facts and the wording of the Act of Parliament in other cases where exactly on all fours with the case with which they were dealing, and in this case it was not so. Mr. Manning did not want to use any words to imply that he was a qualified practitioner; and, if he had used words which implied that, he was quite willing to refrain from using them in the future. But the words used by him could be only considered to come within the Act of Parliament by straining the Act.

Mr. Owen quoted a case reported in the *British Journal of Dental Science*, in which a similar prosecution failed.

The prosecution had not disputed his perfect fairness, and had said that no doubt he was perfectly competent.

The Bench were unanimous in their opinion that the case was proved, and defendant was fined £7 and 26s. costs, or one month.

Mr. Owen:—I will pay.—*Louth and North Lincolnshire Advertiser*.

# Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester during the month of AUGUST, 1898.

| | |
|---|---|
| Number of Patients attended . | 752 |
| Number of Extractions . . | 586 |
| Number of Extractions under Anæsthetics . | 198 |
| Gold Stoppings . . . | 43 |
| Other Stoppings . . . | 72 |
| Miscellaneous {advice, temporary fillings, scalings, dressings, &c. . . | 141 |
| Gold and Porcelain Crowns . . | 22 |
| Inlays . . . | 0 |
| Total . . . | 1794 |

W H JONES, L D S Eng., *House Dental Surgeon.*

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# *BRITISH JOURNAL OF DENTAL SCIENCE.*

# DENTAL STUDENTS' SUPPLEMENT.

### SEPTEMBER 15TH, 1898.

## I.—REGULATIONS OF THE GENERAL MEDICAL COUNCIL IN REGARD TO THE REGISTRATION OF MEDICAL AND DENTAL STUDENTS.

### PRELIMINARY EXAMINATION.

Subject to such exceptions as the Council may from time to time allow, every Medical and Dental Student shall, at the commencement of his Studentship, be registered in the manner and under the conditions prescribed by the *Standing Resolutions* of the Council.

No person shall be allowed to be registered as a Medical or Dental Student unless he shall have previously passed (at one or more Examinations) a preliminary Examination in the following subjects of General Education.

(a) English Language, including Grammar and Composition.

⁂ Marks not exceeding five per cent. of the total marks obtainable in this section of the Examination may be assigned to Candidates who show a competent knowledge of Shorthand.

(b) Latin, including Grammar, Translation from specified authors, and translation of easy passages not taken from such authors.

(c) Mathematics, comprising (*a*) Arithmetic; (*b*) Algebra, as far as Simple Equations, inclusive; (*c*) Geometry, the subject matter of Euclid, Books I., II., and III., with easy deductions.

(d) One of the following optional subjects:—

(*a*) Greek, (*b*) French, (*c*) German, (*d*) Italian, (*e*) any other Modern Language, (*f*) Logic.

⁂ The Council will not in future, except in cases indicated in the following pages accept any Certificate of having passed, a Preliminary Examination in General Education, unless the whole of the subjects included in the Preliminary Examination required by the Council for Registration of Students of Medicine or Dentistry have been passed in at the same time.

It shall be delegated to the Education-Committee to prepare and issue, from time to time, a List of Examining Bodies whose Examinations fulfil the conditions of the Medical Council as regards General Education

Testimonials of Proficiency granted by Educational Bodies, according to the subjoined List (II), shall be accepted; the Council reserving the right to add to or take from the list.

A Degree in Arts of any University of the United Kingdom, or of the Colonies, or of such other Universities as may be specially recognized from time to time by the Medical Council, shall be considered a sufficient Testimonial of Proficiency.

## II.—LIST OF EXAMINING BODIES WHOSE EXAMINATIONS IN GENERAL EDUCATION ARE RECOGNIZED BY THE MEDICAL COUNCIL AS QUALIFYING FOR REGISTRATION AS MEDICAL OR DENTAL STUDENT.

---

### (a.) UNIVERSITIES IN THE UNITED KINGDOM.

University of Oxford :—

1. Junior Local Examinations ; (Certificate to include all the required subjects at one time.)
2. Senior Local Examinations(Certificates to include the required subjects.)
3. Responsions (Certificate to be supplemented by others showing that the required mathematical subjects have been passed in).
4. Moderations (Certificates to include the required subjects.)
5. Final Examination for a degree in Arts.

University of Cambridge :—

6. Junior Local Examinations : (Certificate to include all the required subjects at one time.)
7. Senior Local Examinations; (Certificates to include the required subjects.)
8. Higher Local Examinations (Certificates to include the required subjects).
9. Previous Examination (Certificates to include the required subjects).
10. General Examination (Certificates to include the required subjects.)
11. Final Examination for a Degree in Arts.

University of Durham:—

12. Examination for Certificate of Proficiency (Certificate to include all the required subjects at one time).
13. Preliminary Examination in Arts for Graduation in Medicine and Science (Certificate to include the required subjects).
14. Final Examination for a Degree in Arts.

University of London :—

15. Matriculation Examination (Certificate to include the required subjects).
16. Final Examination for a Degree in Arts or Science.

Victoria University :—

17. Preliminary Examination (Certificate to include all the required subjects at one time).
18. Entrance Examination in Arts, (Certificate to include all the required subjects at one time).
19. Final Examination for a Degree in Arts or Science.

### University of Wales :—

20. Matriculation Examination (Certificate to include all the required subjects at one time).
21. Final Examination for a Degree in Arts.

### University of Edinburgh :—

22. Junior Local Examination (Certificate to include all the required subjects at one time).
23. Senior Local Examination (Certificates to include the required subjects).
24. Preliminary Examination for graduation in Medicine and Surgery (Certificate to include the required subjects).
25. Preliminary Examination for Graduation in Arts or Science (Certificate to include the required subjects).
26. Final Examination for a Degree in Arts or Science.

### University of Aberdeen :—

27. Junior Local Examination (Certificate to include all the required subjects at one time).
28. Senior Local Examination (Certificates to include the required subjects).
29. Preliminary Examination for Graduation in Medicine and Surgery (Certificate to include the required subjects).
30. Preliminary Examination for Graduation in Arts or Scienc (Certificate to include the required subjects).
31. Final Examination for a Degree in Arts or Science.

### University of Glasgow :—

32. Preliminary Examination for graduation in Medicine and Surgery (Certificate to include the required subjects).
33. Preliminary Examination for Graduation in Arts or Science (Certificate to include the required subjects).
34. Final Examination for a Degree in Arts or Science.

### University of St. Andrews :—

35. Preliminary Examination for graduation in Medicine and Surgery (Certificate to include the required subjects).
36. Preliminary Examination for Graduation in Arts or Science (Certificate to include the required subjects).
37. Final Examination for a Degree in Arts or Science.
38. Final Examination for the Diploma of L.L.A.

UNIVERSITY OF DUBLIN :—

39. Public Entrance Examination (Certificate to include the required subjects.)
40. Examination for the First, Second, Third, or Fourth Year in Arts (Certificate to be signed in the approved form by the Medical Registrar of the University).
41. Final Examination for a Degree in Arts.

ROYAL UNIVERSITY OF IRELAND :—

42. Matriculation Examination (Certificate to include the required subjects).
43. Final Examination for a Degree in Arts or Science.

OXFORD AND CAMBRIDGE SCHOOLS' EXAMINATION BOARD :—

44. Lower Certificate (to include all the required subjects at one time.)
45. Higher Certificate (to include the required subjects).

## (b).—MEDICAL LICENSING BODIES.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS IN IRELAND.—

*46. Preliminary Examination (Certificate to include all the required subjects at one time).

## (c).—EDUCATIONAL BODIES OTHER THAN UNIVERSITIES.

COLLEGE OF PRECEPTORS :—

47. Examination for a First Class Certificate or Second Class Certificate of First or Second Division (to include all the required subjects at one time).
48. Preliminary Examination for Medical Students (Certificate to include all the required subjects at one time).

SCOTCH EDUCATION DEPARTMENT :—

49. Examination for Lower Grade Leaving Certificate (to include all the required subjects at one time.)
50. Examinations for Higher Grade or Honours Leaving Certificate (to include the required subjects).

EDUCATIONAL INSTITUTE OF SCOTLAND :—

51. Preliminary Medical Examination (Certificate to include all the required subjects at one time).

INTERMEDIATE EDUCATION BOARD OF IRELAND :—

52. Junior or Middle Grade Examination (Certificate to include all the required subjects at one time).
53. Senior Grade Examination (Certificate to include the required subjects).

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* The Council has recommended that this Examination be discontinued.

## (d).—INDIAN, COLONIAL, AND FOREIGN UNIVERSITIES AND COLLEGES.

⁂ (*a*) No Certificate from the Bodies in the foregoing Section (iv.) is accepted unless it shows that the Examination has been conducted by or under the authority of the Body granting it, includes all the subjects required by the GENERAL MEDICAL COUNCIL, and states that all the subjects of Examination have been passed in at one time; and copies of the form of the required Certificate are supplied by the REGISTRAR of the COUNCIL for the purpose.

(*b*) In the case of Natives of India or other oriental countries, whose vernacular is other than English, an Examination in a classic oriental language may be accepted instead of an Examination in Latin.

## III.—REGISTRATION OF DENTAL STUDENTS.

The Registration of Dental Students shall be carried on at the Medical Council Office, 299, Oxford Street, London, W., in the same manner as the existing Registration of Medical Students—as hereinbefore set forth—and subject to the same regulations as regards Preliminary Examinations, but in the case of Dental Students Professional Study may commence by pupilage with a Registered Dental Practitioner.

Students who commenced their professional education by apprenticeship to Dentists entitled to be registered, or by attendance upon professional lectures, before July 22nd, 1878, (when Dental Education became compulsory,) shall not be required to produce evidence of having passed a Preliminary Examination.

Candidates for a Diploma in Dental Surgery shall produce certificates of having been engaged during four years in Professional Studies, and of having received three years' instruction in Mechanical Dentistry from a registered Practitioner.

One year's *bona fide* apprenticeship with a registered Dental Practitioner, after being registered as a Dental Student, may be counted as one of the four years of professional Study.

The three years of instruction in Mechanical Dentistry, or any part of them, may be taken by the Dental Student either before or after his registration as a Student; but no year of such mechanical instruction shall be counted as one of the four years of Professional Study unless taken after registration.

# IV. EDUCATIONAL BODIES.

## LONDON.

## DENTAL HOSPITAL OF LONDON, AND LONDON SCHOOL OF DENTAL SURGERY, LEICESTER SQUARE.

### DENTAL AND MEDICAL OFFICERS.

*Consulting Physician* :—
Sir RICHARD DOUGLAS POWELL, Bart., M.D.
*Consulting Surgeon*—CHRISTOPHER HEATH, F.R.C.S.
*Consulting Dental Surgeons*:—
T. ARNOLD ROGERS, M.R.C.S., L.D.S.
J. SMITH TURNER, M.R.C.S., L.D.S.

*Dental Surgeons.*
LEONARD MATHESON, L.D.S.
E. LLOYD WILLIAMS, M.R.C.S., L.R.C.P., L.D.S., L.S.A.
W. B. PATERSON, F.R.C.S., L.D.S.
W. H. WOODRUFF, L.D.S.
A. CLAYTON WOODHOUSE, M.R.C.S., L.D.S.
J. F. COLYER, M.R.C.S., L.D.S.

*Assistant Dental Surgeons.*
C. F. RILOT, M.R.C.S., L.D.S.
H. BALDWIN, M.R.C.S., L.D.S.
H. LLOYD WILLIAMS, M.R.C.S., L.D.S.
W. H. DOLAMORE, L.R.C.P., M.R.C.S., L.D.S.
PERCY SMITH, L.R.C.P., M.R.C.S., L.D.S.
G. HERN, L.R.C.P., M.R.C.S., L.D.S.
J. G. TURNER, L.R.C.P., F.R.C.S., L.D.S.
RUSSELL BARRETT, L.R.C.P., M.R.C.S., L.D.S.
ASHLEY DENSHAM, L.R.C.P., M.R.C.S., L.D S.
N. G. BENNETT, B.A., B.C. Cantab., L.D.S.
D. P. GABELL, L.R.C.P., M.R.C.S., L.D.S.

*Anæsthetists.*
W. DUDLEY BUXTON, M.D., B.S. Lond., M.R.C P. Lond.
FREDERIC W. HEWITT, B.A., M.D. Cantab.
CARTER BRAINE, F.R.C.S.
HENRY DAVIS, M.R.C.S., L.S.A.
GEORGE ROWELL, F.R.C.S.
E. A. BRIDGER, M.D.

*Assistant Anæsthetists.*
R. T. BAKEWELL, M.B., Lond., L.R.C.P., M.R.C.S.
H. HILLIARD, L.R.C.P., M.R.C.S.
R. J. PROBYN WILLIAMS, M.D. Durh.
H. BELLAMY GARDNER, L.R.C.P., M.R.C.S.
GEORGE FLUX, M.D. Brux.

*Demonstrators.*
R. HERSCHELL, L.D.S.
H. W. C. AUSTEN, M.B., M.S., L.R.C.P., M.R.C.S., L.D.S.
H. W. TREWBY, L.R.C.P., M.R.C.S., L.D.S.
J. R. FREEMAN, L.D.S.
*Medical Tutor*—W. S. NOWELL, M.D. Oxon., L.D.S.
*Curator of Mechanical Laboratory.*
E. W. FLETCHER.

*Demonstrations.*—Demonstrations will be given every morning during the early part of each Session; and at the end of the Course those Gentlemen who have attended the Demonstrations to the satisfaction of the Staff, will be permitted to perform operations at the Hospital under the supervision of the Medical Officers and the House Surgeon.

A new Mechanical Laboratory has been fitted up and opened in which Demonstrations are given by the Lecturer on Mechanical Dentistry, on Continuous Gum Work, Making Obturators, and the Mechanical Treatment of Acquired and Congenital Cleft Palate, Pivoting, Bridge and Bar Work, &c., and the Students are enabled to make plates for the treatment of Irregularities and of Cleft Palate.

A skilled mechanic is appointed to superintend the laboratory, and the work done therein, who attends daily from 9 a.m. to 6 p.m., to give practical instruction to students.

The WINTER SESSION will commence on October 3rd, 1898.
The SUMMER SESSION will commence 1st May, 1899.

### LECTURES.

*Dental Surgery and Pathology.*—Mr. STORER BENNETT.

*Dental Anatomy and Physiology* (*Human and Comparative*).—Mr. CHARLES TOMES, F.R.S.

*Mechanics of Dentistry.*—Mr. E. LLOYD WILLIAMS.

*Metallurgy in its application to Dental Purposes.*—Dr. FORSTER MORLEY.

### MEDICAL TUTOR.

The Medical Tutor attends four days in the week, from 5 to 7 p.m., for two months previous to the Annual Examinations. His classes are open to all Students, and are intended to assist those who are preparing for their examinations at the College of Surgeons; generally speaking, to guide and direct the studies of the pupils, and prepare them in the subjects for the Examinations.

### FEES.

Fee for the Special Lectures and Hospital Practice required by the Curriculum, £50 in one payment, or 50 Guineas in two yearly instalments.

An extra fee of seven guineas will be payable for every extra six months' Hospital Practice.

All fees are payable on day of entry.

### FEES FOR SINGLE COURSES.

| | £ | s. | d. |
|---|---|---|---|
| Dental Anatomy and Physiology, One Course ... ... ... | 5 | 5 | 0 |
| ,, ,, Two Courses ... ... ... | 8 | 8 | 0 |
| Dental Surgery, One Course ... ... .. ... ... | 5 | 5 | 0 |
| ,, Two Courses ... ... ... ... ... | 8 | 8 | 0 |
| Dental Mechanics, One Course ... ... ... ... ... | 5 | 5 | 0 |
| ,, Two Courses ... ... ... ... ... | 8 | 8 | 0 |
| Metallurgy, One Course ... ... ... ... ... ... | 5 | 5 | 0 |
| ,, Two Courses ... ... ... ... ... ... | 8 | 8 | 0 |

Qualified Medical Men or Gentlemen holding Foreign Diplomas to practise in their native country, can receive six months' practical instruction in the Hospital, fee 20 guineas.

The Medical Committee reserve to themselves the right to refuse any such candidates' application.

Students who perform Operations for Filling Teeth must provide their own Instruments for the same, the proximate cost of which is £25; a list can be had on application, but "The Kit" has been very carefully selected with a view to efficiency, and is well adapted for use in future practice.

Further particulars may be obtained on application to the Dean, who attends at the Hospital every Wednesday from 10 a.m. to 12 noon.

MORTON SMALE, M.R.C.S., L.D.S., L.S.A., *Dean.*

# NATIONAL DENTAL HOSPITAL AND COLLEGE, GREAT PORTLAND STREET, W.

*FOUNDED 1861.*

## HOSPITAL STAFF.

*Consulting Physician.*

Sir W. H. Broadbent, Bart., M.D., F.R.C.P.

*Consulting Surgeon.*

Christopher Heath, F.R.C.S.

*Consulting Dental Surgeon.*

Sir Edwin Saunders, F.R.C.S.

*Visiting Physician.*

James Maughan, M.D.

*Visiting Surgeon.*

E. W. Roughton, F.R.C.S. Etc.

*Dental Surgeons.*

| | |
|---|---|
| Monday ... | F. Henri Weiss, L.D.S. Eng. |
| Tuesday ... | Alfred Smith, L.D.S. Eng. |
| Wednesday ... | Marcus Davis, L.D.S. Eng. |
| Thursday ... | T. G. Read, L.D.S. Eng. D.M.D. |
| Friday ... | W. Rushton, L.D.S. Eng. |
| Saturday ... | C. W. Glassington, M.R.C.S., L.D.S. Edin. |

*Assistant Dental Surgeons.*

| | |
|---|---|
| Monday ... | Willoughby Weiss, L.D.S. Eng. |
| Tuesday ... | Edgar Beverley, L.D.S. Eng. |
| Wednesday ... | S. F. Rose, L.R.C.P., M.R.C.S., L.D.S. Eng. |
| Thursday ... | A. E. Relph, L.D.S. Eng. |
| Friday ... | W. H. Wheatley, L.D.S. Eng. |
| Saturday ... | H. J. Relph, L.D.S. Eng. |

*Anæsthetists.*

| | |
|---|---|
| Monday ... | G. B. Flux, M.D. |
| Tuesday ... | C. E. A. Macleod, F.R.C.S., |
| Wednesday ... | C. J. Ogle, M.R.C.S., L.S.A. |
| Thursday ... | G. Everett Norton, M.R.C.S., L.S.A. |
| Friday ... | James Maughan, M.D. |
| Saturday ... | Harold Low, M.A., M.B. Camb. |

*Demonstrator*—Hubert Moore, L.D.S. Eng.

*House Surgeons.*

W. Jones, L.D.S. Eng.; H. V. Tattersall, L.D.S. Eng.

## LECTURERS.

*Dental Anatomy and Physiology*—J. W. Pare, M.D. Edin., L.D.S. Eng.
*Dental Surgery and Pathology*—A. Hopewell Smith, M.R.C.S., L.R.C.P., L.D.S. Eng.
*Dental Mechanics*—Harry Rose, L.D.S. Eng.
*Dental Metallurgy*—A. B. Griffiths, Ph.D., F.C.S., F.R.S. Edin.
*Surgery of the Mouth*—E. W. Roughton, M.D. Lond. F.R.C.S. Eng.
*Practical Dental Surgery*—Geo. Cunningham, M.A., L.D.S. Eng. D.M.D.
*Dental Materia Medica*—Chas. W. Glassington, M.R.C.S., L.D.S. Edin.
*Elements of Histology*—J. Maughan, M.D.
*Dental Histology*—A. Hopewell Smith, L.R.C.P., M.R.C.S., L.D.S. Eng.
*Curator of Mechanical Laboratory*—W. L. Marthews.

At present the Hospital is open for the reception of patients every week-day, from 9 o'clock till 11 o'clock a.m. Work is continued till 2 o'clock p.m.

The accommodation and fittings are in accordance with the latest requirements for efficient teaching in all branches of the Science and Art of Dental Surgery.

The Conservation Room, with space for sixty chairs, is well lighted and warmed and ventilated after approved methods.

Other large rooms are arranged as a Mechanical Laboratory, Special Demonstration Room, Students' Common Room, &c.

There are also a Metallurgical Laboratory, Library and Museum. The Waiting Rooms, Extraction Rooms and Lecture Hall are on the ground floor.

The building is lighted throughout by electricity, and there is also a current for motors in the Stopping Room.

Each Student on entering the School passes through a preliminary course under the care of a Demonstrator, and all the members of the Staff take part in chair-side teaching, besides giving special demonstrations.

### *Dresserships in the Extraction Rooms.*

These appointments are re-arranged every two months. The respective dressers for each day are required to be in attendance from 9 o'clock till the conclusion of the practice; and they will be under the direction of the Dental Surgeons of the day, and of the House Surgeon.

### *Clinical Lectures and Demonstrations.*

Each medical officer will give clinical lectures, when opportune, during the ensuing year. Clinical lectures will also be given from time to time on cases of special interest; and also demonstrations upon the preparing and filling of cavities and other operations upon the teeth and contiguous parts.

The Hon. Visiting Physician and Surgeon give Demonstrations weekly, on cases of Oral Surgery, Anæsthetics, Cardiac, and Pulmonary lesions, and a member of the anæsthetic staff gives a course of lectures.

### *Attendance and Examination of Students.*

A register is kept of the attendance ot students at the Hospital Practice and lectures. An attendance of full two years at Hospital practice is required by the College of Surgeons of England; and no schedule will be signed for any lectures of which less than two-thirds have been attended. Class examinations are held frequently during the several courses, to test the progress and attention of the pupils; and at the end of each course of lectures a written examination is held, in accordance with the requirements of the College of Surgeons. An insufficient attendance at lectures disqualifies the student for receiving any prize of that year.

Tutorial classes are held to prepare for the final examinations, students who have, at this school, complied with the Dental portion of the Curriculum.

A proposal is under consideration for admitting a limited number of pupils to the Mechanical Laboratory for the three years' training.

## LECTURES.

WINTER SESSION, COMMENCING ON MONDAY, OCT. 3rd, 1898.

*Dental Anatomy and Physiology*, by J. W. Pare, M.D. Edin., L.D.S.E. On Tuesdays and Thursdays, at 5 p.m., during October, November, and December.

*Practical Dental Surgery*, by George Cunningham, M.A., D.M.D., L.D.S. Eng. On Mondays, at 6 p.m., during October, November and December Free (to Students of the Hospital and College.)

*Dental Materia Medica and Therapeutics*, by Charles W. Glassington, M.R.C.S., L.D.S. Edin. On Tuesdays at 6 p.m. during October, November, and December. (Free to Students of the College).

*Dental Metallurgy*, by A. B. Griffiths, Ph.D., F,C.S. On Tuesdays at 5.45 p.m., during January, February, and March.

*Dental Mechanics*, by Harry Rose, L.D.S. Eng. On Wednesdays at 6 p.m., during January, February and March.

*Practical Dental Histology*, by A. Hopewell Smith, L.R.C.P., M.R.C.S., L.D.S. Eng. Fridays at 4 p.m. during January and February.

### SUMMER SESSION, 1899.

*Dental Surgery and Pathology.* By A. Hopewell Smith, L.R.C.P.,M.R.C.S., L.D.S. Eng. On Tuesdays and Fridays, at 4 p.m., during May, June, and July.

*Elements of Histology*, by James Maughan, M.D., L.R.C.P., M.R.C.S. On Mondays and Thursdays, at 5 p.m., during May, June, and July. (Free to Students of the College).

*Surgery of the Mouth.* By E. W. Roughton, M.D. Lond., F.R.C.S. Eng. On Mondays, at 5 p.m., during May, June, and July.

## FEES.

Total Fee for the Special Lectures and Hospital Practice required by the Curriculum, £40.

## PRIZES.

An Entrance Exhibition of the value of £15 is open for competition at the commencement of each Summer and Winter Session, after an Examination in the following subjects—

*Physiology.* (The Functions of Respiration, Circulation and Digestion.) Examiner—James Maughan, M.D.

*Osteology.* (Bones of the head). Examiner—E. W. Roughton, F.R.C.S.

*Chemistry.* Examiner—A. P. Griffiths, F.R.S. Edin., Ph.D., F.C.S.

*Dental Mechanics.* (Theoretical and Practical). Examiner—Harry Rose, L.D.S. Eng.

*Prizes* in Medals, are open for competition among the students of the Colleges, at the end of each Course of Lectures.

*Certificates of Honour* will be awarded to those Students who show superior proficiency in any of the classes.

*The Rymer Gold Medal for General Proficiency*, value £5, will be awarded annually to the most distinguished Student of the year. His general conduct and attendance must have been in every respect satisfactory. At the time of the special examination for the Rymer Medal, the Student must not hold any qualification. The Medal will be awarded on the understanding that the Student completes the Dental Curriculum.

*The Ash Prize*, value £3 3s. in cash for the best Thesis on a subject in Dental Surgery.

The Dean attends the Hospital on Tuesday mornings at 11 a.m.

The public Distribution of Prizes will take place during the Winter Session.

SIDNEY SPOKES, M.R.C.S., L.D.S. Eng., *Dean*.

# GUY'S HOSPITAL DENTAL SCHOOL.

The Winter Session will begin on October 3rd, and end on March 31st.

## *THE STAFF OF THE DENTAL SCHOOL.*

### *Dental Surgeons.*

F. Newland-Pedley, F.R.C.S., L.D.S. Eng.
W. A. Maggs, L.R.C.P., M.R.C.S., L.D.S. Eng.
J. H. Badcock, L.R.C.P., M.R.C.S., L.D.S. Eng.

### *Assistant Dental Surgeons.*

R. Wynne Rouw, L.R.C.P., M.R.C.S., L.D.S.E.
H. L. Pillin, L.D.S.E.
A. E. Baker, L.R.C.P., M.R.C.S., L.D.S.E.
M. F. Hopson, L.D.S.E.

### *Demonstrators in Practical Dentistry.*

J. B. Parfitt, L.R.C.P., M.R.C.S., L.D.S. Eng.
W. R. Wood, L.D.S. Eng.
J. L. Payne, L.D.S. Eng.
J. W. Pare, M.D., L.D S. Eng.
K. W. Goadby, L.D.S. Eng.

### *Anæsthetists.*

J. F. W. Silk, M.D.
F. W. Cock, M.D., M.S.
H. F. Lancaster, M.D.
C. J. Ogle, M.R.C.S., L.S.A.
E. T. E. Hamilton, M.D., M.S.

## LECTURES AND DEMONSTRATIONS.

### Winter Session.

| | |
|---|---|
| *Dental Surgery* ... ... | Mr. Newland-Pedley. |
| *Dental Anatomy and Physiology* ... | Mr. Maggs. |
| *Metallurgy* ... ... ... | Mr. Groves, F.R.S. |

### Summer Session.

| | |
|---|---|
| *Operative Dental Surgery* ... | Mr. Badcock. |
| *Dental Mechanics* ... ... | Mr. Wynne Rouw. |
| *Dental Microscopy* ... ... | Mr. Baker. |
| *Demonstrator of Dental Mechanics* | Mr. Pillin. |

**An Open Entrance Scholarship in Arts**, of the value of £30, is offered for competition annually in the month of September. All particulars relating to the examination may be obtained upon application to the Dean.

**Three Prizes**, of the aggregate value of £35, are awarded annually.

**Appointments.** The following appointments are allotted to Dental Students according to merit; Three Dental House-Surgeons, two Assistant Dental House-Surgeons, one Assistant Demonstrator of Dental Microscopy, and six Demonstrators in the Conservation Room.

The connection of this School with Guy's Hospital Medical School enables Candidates for the L.D.S. Eng., to obtain at one institution the entire curriculum required by the Examining Board, an advantage which cannot be obtained elsewhere in London.

Preparation Classes are held before each examination in both the Special and the General Subjects of the curriculum.

A Prospectus, containing full particulars as to Fees, Lectures, Course of Study advised, the Residential College, &c., may be obtained on application to the Dean.

Dr. LAURISTON SHAW, Guy's Hospital, S.E.

## THE VICTORIA DENTAL HOSPITAL OF MANCHESTER, DEVONSHIRE STREET, ALL SAINTS.

*Consulting Physicians :*

Henry Simpson, M.D., M.R.C.S.
D. J. Leech, M.D., F.R.C.P.

*Consulting Surgeons :*

F. A. Heath, M.R.C S.
T. Jones, F.R.C.S.
J. Hardie, F.R.C.S.

*Consulting Dental Surgeon.*

H. Campion, M.R.C.S.

*Dental Surgeons.*

| | |
|---|---|
| Monday Morning | I. Renshaw, L.D.S.I. ; D. Headridge, L.D.S. Eng. |
| Monday Evening | W. Headridge, L.D.S.I, ; T.E.Sherratt,L.D.S.Eng. |
| Tuesday Morning | T. Tanner,L.D.S. Eng.; G. O. Whittaker,L.D.S.Eng. |
| Wednesday Morning | P.A.Linnell,L.D.S. Eng.; F.W.Minshall,L.D.S.I. |
| Wednesday Evening | W.A.Hooton,L.D.S.Eng.;H.W.Norman,L.D.S.Eng. |
| Thursday Morning | H. T. Dreschfeld,L.D.S. ; E.P.Collett,L.D.S.Eng. |
| Friday Morning ... | G. G. Campion, L.D.S. Eng. ; W. Simms, L.D.S.I. |
| Friday Evening ... | W. Dykes, L.D.S. Glas. ; C.H. Smale, L.D.S.E. |
| Saturday Morning | J. W Dunkerley, L.D.S.I. ; W. Smithard, L.D.S.I. |

*Administrators of Anæsthetics.*

A. Wilson, F.R.C.S.
J. W. Smith, F.R.C.S.
F. H. Westmacott, F.R.C.S.

*Demonstrator.*

T. H. Miller, M.B., L.D.S.

### Preliminary Instruction.

During the first six months at the Hospital, new students are taken by the Demonstrator through a very complete course of practical instruction in all branches of operative dentistry. This course includes the actual preparation and filling of cavities out of, and in the mouth, the treatment of the different pathological conditions of the dental pulp, the treatment and filling of root canals, and the different methods of crowning.

**A special course of demonstrations** is given to more advanced students by the Lecturer on Operative Dentistry, and other demonstrations are given periodically by the dental staff.

**Prizes.**—The Fletcher prizes are awarded annually—in July. They consist of a first prize, value £16, for second year's men, and a second prize, value £2, for first year's men. The Matheson Operating Prize, value £3 3s. A prize, value £2 2s. is given by Messrs. Ash & Sons for the best essay on some subject in general surgery in connection with the teeth. This prize is awarded in July. Two prizes, value one guinea and two guineas are offered respectively to first and second year's men, for proficiency in the extraction of teeth. A prize, value 2 guineas, for the best Regulating Cas treated during the year.

**FEES.**—The Fee for the 2 years' Dental Hospital Practice required by the College of Surgeons of England is £12 12s., which must be paid in advance.

A prospectus containing full information may be had on application to—

GEORGE G. CAMPION, Dean.

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## THE OWENS COLLEGE, MANCHESTER.

*Principal*—Alfred Hopkinson, Q.C., M.A., B.C.L.

*Dean of the Department of Medicine*—Professor Alfred H. Young, M.B., F.R.C.S.

### DENTAL DEPARTMENT.

### PROFESSORS AND LECTURERS.

*Anatomy, Descriptive and Practical*— Professor Alfred H. Young, M.B., F.R.C.S.
*Physiology*—Brackenbury Professor Wm. Stirling, M.D., D.Sc.
*Chemistry*—Professor Harold B. Dixon, M.A., F.R.S.
*Organic Chemistry*—Professor W. H. Perkin, Ph. D., F.R.S.
*Materia Medica and Therapeutics*—Professor D. J. Leech, M.D., F.R.C.P.
*Medicine*—Professor J. Dreschfeld, M.D., F.R.C.P.
*Surgery*—Professor Thomas Jones, M.B., F.R.C.S.
*Clinical Surgery*—Professor Walter Whitehead, F.R.C.S.E., F.R.S.E.
*Dental Surgery*—Lecturer, G. G. Campion, L.D.S.
*Operative Dentistry*—Lecturer, G. O. Whittaker, L.D.S.
*Dental Anatomy and Physiology*—Lecturer, W. A. Hooton, L.D.S., L.R.C.P., M.R.C.S.
*Dental Mechanics*—Lecturer, Thomas Tanner, L.D.S.
*Dental Metallurgy*—Lecturer, C. A. Burghardt, Ph. D.
*Dental Pathology and Histology*—Lecturer, David Headridge, L.D.S.

The Dental Department forms an integral part of the Department of Medicine, and with the Manchester Royal Infirmary and the Victoria Dental Hospital affords the fullest opportunities for study to students preparing for any of the Dental Examinations.

In addition to the ordinary Dental Lectures required by the Licensing Bodies, a course on Operative Dentistry is given during the Summer Session, and these are supplemented by a series of Practical Demonstrations given by the Lecturer at the Victoria Dental Hospital.

There is also a special Course of Demonstrations in Dental Histology and Pathology, in which Students are enabled to mount for themselves Microscopic Specimens illustrating these subjects.

PRIZES.—Prizes or Medals and Certificates are awarded in all the classes on the results of the several examinations.

Special Prizes are also awarded at the Victoria Dental Hospital.

The WINTER SESSION commences on October 3rd.

Prospectuses will be forwarded on application.

Sydney Chaffers., Registrar.

## LIVERPOOL.

## DENTAL HOSPITAL, MOUNT PLEASANT.

*Consulting Physician*—Thomas Robinson Glynn, M.D., F.R.C.P., Lond.

*Consulting Surgeon*—Frank T. Paul, F.R.C.S. Eng.

*Consulting Dental Surgeons.*

C. Alder, L.D.S.
H. C. Quinby, L.D.S.
W. H. Waite, L.D.S., D.D.S.

*Dental Surgeons.*

R. H. Bates, L.D.S. Eng.
R. M. Capon, L.D.S. Glasgow.
E. A. Councell, L.D.S. Eng.
R. Edwards, M.R.C.S., L.D.S. Eng.
L. J. Osborn, L.D.S. Eng.
W. H. Gilmour, L.D.S. Eng.
E. H. Mountford, L.D.S. Eng.
W. Mapplebeck, L.D.S.I.
J. P. Roberts, L.D.S. Ed.
Frederick Rose, L.D.S. Eng.
T. Tindall, L.D.S. Eng.
J. Lloyd, M.R.C.R., L.R.C.P., L.D.S.

*Demonstrator of Operative Dental Surgery.*
John Skae, L.D.S. Eng.

*Anæsthetist.*—J. E. Gemmell, M.B., C.M.

*House Surgeon.*
Arthur Drake, L.D.S. Eng.

*Assistant House Surgeon.*
S. S. Doran.

*Curator of Workroom.*
Arthur Drake. L.D.S. Eng.
*Dean*—A. M. Paterson, M.D.

This Hospital is a school of Practical Dental Surgery, duly recognised by the Royal College of Surgeons, and open to all Students of Dentistry, under such regulations as shall be determined by the Committee of Management. It is now incorporated with the Medical Faculty of University College, Liverpool.

The Hospital is open, daily, for the admission of patients from 9 till 11 a.m., and from 6. 30 to 8 p.m., except on Saturday.

Fees for Hospital Practice. £12 12s. for two years' Hospital Practice required for the curriculum. £15 15s. perpetual.

**Entrance Scholarship.**—An Entrance Scholarship (value £20 for one year) has been presented to the school by Mr. Fletcher, of Warrington. An examination in Mechanical Dentistry will be held at the beginning of October.

A Prospectus giving further information may be obtained by applying to the Dean at University College, Liverpool.

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## BIRMINGHAM.

## MASON COLLEGE, (With QUEEN'S FACULTY OF MEDICINE.)

### DENTAL DEPARTMENT.

*Dean of the Queen's Faculty* ... Professor Windle, M.A., M.D., D.Sc.

*Dental Lecturers and Demonstrators.*

Winter Session.

*Surgical Diseases of the Mouth*—F. Marsh, F.R.C.S.
*Medical Diseases of the Mouth*—T. Stacey Wilson, M.D., M.R.C.P.
*Dental Surgery*—F. E. Huxley, M.R.C.S., L.D.S.Ed.
*Dental Anatomy*—J. Humphreys, L.D.S.I., F.L.S.
*Dental Metallurgy*—G. Melland, B.Sc., F.I.C.

### Summer Session.

*Dental Mechanics*—F. H. Goffe, L.D.S.Eng.
*Practical Dentistry*—F. R. Howard, L.D.S.Eng.
*Operative Dental Surgery*—W. T. Madin, L.D.S.Eng.
*Dental Hestology and Patho-Histology*—Dencer Whittles, L.D.S.Eng.

### General Courses.

*Medicine* Professor R. Saundby, M.D., F.R.C.P., L.L.D.
Professor A. H. Carter, M.D., F.R.C.P.
*Surgery* Professor Bennett May, M.B., B.S., F.R.C.S.
Professor G. Barling, M.B., B.S., F.R.C.S.
*Anatomy*—Professor Bertram C. A. Windle, M.A., M.D., D.Sc.
*Physiology*—Professor F. J. Allen, M.A., M.D.
*Chemistry*—Professor Percy F. Frankland, Ph.D., B.Sc., F.R.S.
*Materia Medica and Practical Pharmacy*—Mr. Dencer Whittles, L.D.S. Eng., and Mr. J. Coole Kneale, L.R.C.P. & S., Ed.

The Dental Department, in conjunction with the General, Queen's and Dental Hospitals, affords a complete curriculum for all Dental Diplomas. There is an Entrance Scholarship, and Medals and Honour Certificates are awarded in the classes.

For Syllabus and further information, apply to John Humphreys, Esq., L.D.S.I., F.L.S. Hon. Sec., to the Department, or to the Registrar at the College.

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## BIRMINGHAM DENTAL HOSPITAL,

### 71, Newhall Street.

Provides all the necessary practice for the L.D.S. Eng.

### DENTAL STAFF.

*Hon. Dental Surgeons*:

W. H. B. Neale, L.D.S.
F. W. Richards, L.D.S.
F. E. Huxley, M.R.C.S., L.D.S.
F. H. Goffe, L.D.S.
A. E. Donagan, B.A., L.D.S.

*Hon. Assistant Dental Surgeons*:

F. R. Howard, L.D.S.
J. Mountford, L.D.S.
W. T. Madin, L.D.S.
A. E. Parrott, L.D.S.
P. T. Naden, L.D.S. L.S.A.
A. T. Hilder, L.D.S.,
W. M. Knott, L.D.S.

*Demonstrators*:

A. T. Steynor, L.D.S.
C. Matthews, L.D.S.

*Anæsthetists*:

S. W. Haynes, M.B.
T. S. Short, M.D.
M. Young, M.B.
J. H. Blakeney, M.R.C.S.
C. T. Johnston, M.R.C.S.
H. W. Pooler, M.R.C.S.
W. J. McCardie, M.D.

*House Surgeon*:

H. P. Joscelyn.

The Dental Hospital was founded in 1858, and the Dental School was formed in conjunction with the Queen's College in 1880.

The Dental Hospital having an annual attendance of upwards of ten thousand patients, affords every advantage for Students about to enter the profession to acquire a thorough practical knowledge as required by the Examining Board of the Royal College of Surgeons.

The system of teaching is such that each student is required to learn and to satisfactorily perform operations in the various forms of filling, in regulations, extractions with and without anæsthetics, and also in crown and bridgework, &c.

**A New Mechanical Department** has been arranged, so that Students may acquire the necessary skill in the making and fitting of Dentures. All new Students go through a systematic course of instruction with one of the Demonstrators before commencing work in the extracting and Conservancy Rooms.

The Members of the Staff give chair-side instruction daily.

Certificates of Merit are awarded annually to the best operators. The "C. Green" Memorial Silver Medal is awarded to the best operator under Anæsthetics. Messrs. C. Ash & Sons give a Prize annually for the best essay upon a given subject. A Prize is awarded annually for the best series of Regulation Cases. Neither prizes nor certificates are awarded unless sufficient merit is shown.

A Prospectus containing full information will be forwarded on application to FRED. W. RICHARDS, Dean.

## DEVON AND EXETER DENTAL HOSPITAL, EXETER.

*President.*

GEO. FRANKLIN, Esq., J.P.

*Honorary Treasurer.*

J. M. ACKLAND, M.R.C.S., L.D.S. Eng.

*Consulting Surgeons.*

A. J. CUMMING, F.R.C.S. Eng.
JAMES BANKART, M.B. Lond., F.R.C.S. Eng.

*Consulting Dental Surgeon.*

S. BEVAN FOX, L.D.S. Eng.

*Dental Surgeons.*

J. T. BROWNE-MASON, L.D.S. Eng.
HENRY BIGING MASON, L.D.S. Eng.
T. G. T. GARLAND, L.D.S.I.
J. M. ACKLAND, M.R.C.S., L.D.S., Eng.
T. A. GOARD, L.R.C.P. Ld., L.D.S. Eng.
W. H. GOODMAN, L.D.S. Eng.

*Surgeon Administrators of Anæsthetics.*

JOHN MORTIMER, M.B. Lond., M.R.C.S. Eng.
RUSSELL COOMBE, M.A. Cantab., F.R.C.S. Eng.

*Honorary Secretary.*

HENRY YEO.

Attendance on the practice of this Hospital is recognised by the Royal College of Surgeons of England as qualifying for their Dental Diploma.

The Hospital is open daily (Sundays excepted), and patients are admitted between the hours of 9 and 11 a.m.

Pupils or any member of the Staff or other registered Practitioner (being a Life or Annual Governor) are permitted to attend the Practice of the Hospital, subject to the approval of the Medical Sub-Committee, on payment of Five Guineas annually to the Funds of the Institution. Students attending the practice of the Hospital must consider themselves strictly under the control of the Medical Officers, and must not undertake any operation without the consent of the Dental Surgeon for the day.

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## PLYMOUTH DENTAL HOSPITAL,

BANK STREET CHAMBERS, BANK STREET, PLYMOUTH.

The Dentists attend each day, at 9 a.m. except Sundays.

Certificates of attendance on the practice of this Dental Hospital are recognized by the College of Surgeons as qualifying for the Diploma in Dental Surgery. The College also recognizes the lectures delivered at the Hospital.

Pupils of any of the Dental Surgeons of the Plymouth Dental Hospital, or other Dentists holding a Diploma of the College of Surgeons, or Members of the Odontological Society, may attend the Hospital on the day of such practitioner as may agree to accept such pupils,on the payment of £1 1s. per annum to the institution.

A Course of Lectures will—if a sufficient number of Students present themselves—be delivered during the year.

On "Dental Physiology, Dental Anatomy, Dental Mechanics."
Fee to Lectures, one Course, £7 7s.
Fee to Lectures, double Course, £12 12s. (required for Diploma.)
Fee to Dental Practice at Hospital £5 5s. per annum.
Fee to entire Dental Curriculum (required for Diploma) 22 guineas.

E. A. BENNETT, Hon. Sec. and Treasurer.

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## EDINBURGH.

## INCORPORATED EDINBURGH DENTAL HOSPITAL AND SCHOOLS.

*Consulting Medical Officers.*

Dr. ALEX. PEDDIE, F.R.C.P.E., Physician.
Dr. JOSEPH BELL, F.R.C.S.E., Surgeon.
Dr. JOHN SMITH, L.L.D., F.R.C.S.E., Surgeon-Dentist.
*Dean*—Mr. W. BOWMAN MACLEOD, L.D.S., 16, George Square.

### *Dental Surgeons.*

| | |
|---|---|
| Monday | Mr. J. G. Munro. L.D.S. |
| Tuesday | Mr. G. W. Watson, L.D.S. |
| Wednesday | Mr. J. S. Durward, L.D.S. |
| Thursday | Mr. J.S. Amoore, L.D.S. |
| Friday | Mr. Fred Page, L.D.S. |
| Saturday | Mr. David Monroe, L.D.S. |

### *Assistant Dental Surgeons.*

| | |
|---|---|
| Monday | Mr. H. B. Ezard, L.D.S., Mr. J. Alex. Young, L.D.S. |
| Tuesday | Mr. R. N. Hannah, L.D.S. ; Mr. Fred. J. Turnbull, L.R.C.P.. & S., L.D.S. |
| Wednesday | Mr. T. Gregory, L.D.S. ; Mr. D. B. Wilson, L.D.S. |
| Thursday | Mr. Robert Lindsay, L.D.S. ; Mr. Hume Purdie, L.D.S. |
| Friday | Mr. J. Malcolm, L.D.S. |
| Saturday | |

### *Chloroformists.*

| | |
|---|---|
| Monday | Dr. R. J. Johnston. |
| Tuesday | Dr. Thomas Proudfoot. |
| Wednesday | Dr. Wm. Lundie, B.Sc. |
| Thursday | Dr. G. Matheson Cullen. |
| Saturday | Dr. M. Farquharson. |

Hospital Practice commences on 4th October.

## DENTAL SCHOOL.

### Lectures.

*Dental Anatomy and Physiology* (Human and Comparative) by William Guy, F.R.C.S., L.R.C.P., L.D.S.—These Lectures will be delivered on the evenings of Tuesday and Friday, at 8 o'clock, commencing October, 1898. The Course consisting of twenty-four Lectures, will be illustrated by preparations, models, diagrams, microscopical specimens, etc.

*Dental Surgery and Pathology*, by George W. Watson, L.D.S.—These Lectures will be delivered on the mornings of Tuesday and Friday at 8 o'clock, during the Summer Session, commencing May, 1899. The course, consisting of twenty-four Lectures, will be illustrated by preparations, models, diagrams, microscopical preparations, etc.

*Mechanical Dentistry*, W. Bowman Macleod, L.D.S. The Lectures will commence November, 1898. at 8 p.m., and be continued every Wednesday thereafter till the Course of at least twelve Lectures is concluded.

In connection with the above a course of Lectures on Metallurgy will be given by Mr. Robert Lindsay, L.D.S.

*Practical Mechanics.*—J. Graham Munro. L.D.S.—In addition to the Systematic Lectures, there will be given during the Session, Demonstrations on Dental Mechanics, and each Student will be expected to prepare the mouth take the impression, make the denture, and insert the same in at least four cases. Special facilities are afforded in the Mechanical Department ; a large and fully equipped workroom under the charge and direction of a competent mechanic, having been set aside for the construction of dental appliances. The Demonstrations will be spread over the two years of Hospital practice, and will be given as occasion serves. Students will be required to furnish their own hand tools.

Extra course of Lectures, Dental Materia Medica and Therapeutics, by Mr. F. J. Turnbull, L.D.S., L.R.C.P., & S.E. Gold Fillings, H. Bycroft Ezard, L.D.S.

The Hospital Practice and Lectures qualify for the Dental Diploma of the Royal College of Surgeons, Edinburgh, and also for that of the other Licensing Bodies. Second Courses of the Lectures as required by the Royal College of Surgeons of England, £2 4s.

For further information apply to the Dean, who will be found at the Hospital every Wednesday morning between 9 and 10 o'clock.

THE SESSION OPENS OCTOBER 4th, 1898.

*General Fee for the Hospital Practice and special Lectures required by the Curriculum.*

| | £ | s. | d. |
|---|---|---|---|
| Hospital Practice, Two Years...................... | £15 | 15 | 0 |
| One Course of 24 Lectures in Dental Anatomy ... | 9 | 15 | 0 |
| ,, 22 ,, ,, Surgery ... | | | |
| ,, 12 ,, ,, Mechanics ... | | | |
| Total:....................... | £25 | 10 | 0 |

For further particulars, apply to the Dean, 31, Chambers Street, Edinburgh.

# GLASGOW.

## DENTAL HOSPITAL AND SCHOOL,

5, ST. VINCENT STREET.

The Hospital is open daily except Saturday and Sunday, from 5 p.m. till 7 p.m.

The work of the Hospital is conducted as far as possible, by the Students, under the supervision of the Dental Officer of the day. Cases of special interest will be made the subject of clinical instruction or demonstration as they occur.

The practice of the Hospital may be entered upon at any time during the Session and attendance dated therefrom. Fee for the two years' practice required by the Curriculum, £15 15s. Fee for each course of Lectures, £3 3s.

### DENTAL SCHOOL.

Dental Anatomy and Physiology, Human and Comparative, by W. WALLACE, M.A., M.B., L.D.S.

The Lectures will be delivered in the Summer Session, on the evenings of Wednesdays and Fridays, at 8 p.m., and will be illustrated by Diagrams, Preparations, and Microscopic Specimens. Text Book—Tomes Manual of Dental Anatomy, Human and Comparative.

Dental Surgery and Pathology, by J. M. MACMILLAN,. LR.C.S., & P.Ed., L.D.S.

These Lectures are delivered on Tuesdays and Thursdays during the months of May and June, at 8 a.m., and will be illustrated by recent Specimens, and other Preparations and Drawings, &c. Text-books—Tomes' Manual of Dental Surgery and Diseases and Injuries of the Teeth by Morton Smale and J. F. Coyler.

Mechanical Dentistry, by J. A. BIGGS, L.D.S.

This course will commence on the first Tuesday of November at 7.30 p.m., and will consist of 12 Lectures, with Practical Demonstrations in Dental Laboratory.

All communications on matters relating to the Dental School should be addressed to D. M. Alexander, Solicitor, 97, West Regent Street, Glasgow, who will forward detailed Prospectus of the School.

# SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, EDINBURGH.

The Fees required for students attending general subjects necessary for the curriculum of the Royal College of Surgeons, Edinburgh, are the same as those for the Conjoint Examining Board, as Candidates for the L.R.C.S.E. require to be in possession of a recognised Diploma in Medicine.

The Secretary of the School is Mr. R. N. Ramsay, 24, Forrest Road, Edinburgh, from whom the official Calendar may be had gratis.

# DENTAL HOSPITAL OF IRELAND,

## LINCOLN PLACE, DUBLIN.

The Winter Session will commence on Monday, October 3rd, 98.

The Summer Session will commence in May, 1899.

*Consulting Physicians*:

Sir F. R. Cruise, M.D.
John W. Moore, M.D.

*Consulting Surgeons*:

E. H. Bennett, F.R.C.S.I.
Sir W. Stokes, F.R.C.S.I.

*Consulting Dentists*:

R. H. Moore, F.R.C.S.I.
W. Booth Pearsall, F.R.C.S.I.
Daniel Corbett, M.R.C.S. L.D.S. Eng.

*Dentists*:

R. Theodore Stack, M.D. F.R.C.S.I., D.M.D. (Harv.) L.D.S., Eng.
A. W. W. Baker, M.D., F.R.C.S.I. L.D.S.I.
D. Corbett, Jr., F.R.C.S.I.
G. W. Yeates, M.B., BCh.M., L.D.S.I.
G. M. P. Murray, F.R.C.S.I.
J. S. Thomson, L.D.S. Ed.
Shenstone J. Bishop, L.D.S.I.

*Assistant Dentists*:

K. E. O'Duffy, L.D.S., Ed.
Vincent Doyle, L.D.S.I.
G. P. Moore, M.B., B.Ch.M., L.D.S.E.
G. J. Goldie, L.R.C.P., L.D.S.Edin.
Murray Thomson, L.D.S Edin.
W. G. Story, M.B., L.R.C.S., L.D.S.I.
John Stanton, L.D.S.I.

*Anæsthetists.*

J. G. Cronyn, L.R.C.P., L.R.C.S.I.
Jas. B. Coleman, M.D., Ch.M., R.U.I.
J. Dallas Pratt, M.D., F.R.C.S.I.
Henry Drury, M.D., F.R.C.P.I.
Chas. J. Boyce, L.R.C.P., L.R.C.S.I.
Michael O'Sullivan, M.B., B. Ch. F.R.U.I.

*Pathologist*—John Mallet Purser, M.D.
*Registrar*—William A. Shea.

In connection with the Dental Hospital the Dental School will open for the Winter Session on October 3rd.

All Dental Students who have passed their Preliminary Examination are admissible to the Clinical Instruction of the Hospital, after paying Fees and subscribing to the conditions prescribed by the Staff.

In addition to Clinical Instruction, Courses of Lectures will be given at the Hospital in Dental Surgery and Pathology, by Dr. Baker and Mr. Murray, and in Dental Mechanics by Mr. Yeates and Mr. Bishop, during the Winter Session. In Dental Anatomy and Metallurgy by the Professors in the various Medical Schools, during the Summer Session.

In addition to the longer courses of Hospital attendance, special courses of three months' duration, will be given to Surgeons about to join the Army and Navy, or to practise in the Colonies or remote country districts.

Further information can be obtained from the Registrar, or from

A. W. W. BAKER, M.D., Acting Dean.

## COOKE'S SCHOOL.

This School is recognised by the London University, and other Examining Bodies, and offers somewhat special advantages to such as aim at combining the Dental and Medical Curricula with economy as to time and expense. Through the School being open for Anatomical work, not only during the winter months, but also during the summer months, extra time is obtained which would admit of the Dental and Medical Curricula being taken conjointly in something like the time usually allotted to either. It is not intended to take on *for Curriculum work*, at Cooke's School more than a limited number of men, *who must be steady and earnest workers.* For such, however, exceptional advantages are offered in regard to thoroughly practical work in Anatomy and Physiology. The School also affords ample opportunities for additional work in preparation for the various examinations: dissecting room well supplied with dissected parts, &c., &c. For further information apply to Mr. Thomas Cooke, F.R.C.S., 40, Brunswick Sq., W.C.

## INSTITUTE OF DENTAL TECHNOLOGY, AND SCHOOL OF MECHANICAL DENTISTRY,

### 4, LANGHAM CHAMBERS, ALL SOUL'S PLACE, LONDON, W.

The Institute has been recognised by the Technical Education Board of the London County Council as a School where intermediate Scholarships can be held for a two years course in Manual Training, Science, and Applied Dental Technics.

The *first* year's course is mainly devoted to Manual Training in Wood and Metal Work at Anvil, Forge, Vice, and Lathe, with Drawing; Instrument Making; Modelling and Wood-carving with Repoussé Work; Pattern-making and Moulding; and the Scientific Course in Physics, Chemistry, and Morphology of the Teeth, and introductory Mechanical Laboratory course;

the *second*, to Applied Manual Training in a graduated series of dental appliances, Plate Work, Crown and Bridge Work; and the Applied Science Course of Chemical and Metallurgical Dental Technics, Furnaces, Metals, Alloys, Solders, Plate, Wire, Clasps, Amalgams, and Cements; the *third*, to special and more advanced work in Mechanical Dentistry, comparative value of different methods, Keramics, Continuous Gum Work, Obturators, Dental Splints, and Surgical Appliances and Restorations; and to Research Work or Elective Studies according to individual capacity.

The Manual Training Department is in full working order under the superintendence of PHILIP BRAHAM.

The Scientific Department is under the direction of T. BOLAS, F.I.C. F.C.S.

The Art Teaching will be conducted by special instructors from the Guild and School of Handicraft, by arrangement with C. A. ASHBEE, M.A.

The Mechanical Laboratory is open daily, under the superintendence of W. W. MACKAY.

Special Courses in Crown and Bridge Work will be conducted under the direction of E. BRADNER WHITE, D.D.S., Univ. of Penn., U.S.A., and the Principal.

The Sedley Taylor (£25) and the Jonas (£10) Scholarships will be awarded according to the applicant's skill and experience in handicraft, previous to entrance as a Student.

Probationary Course in Manual Training, three months, 38 hours teaching weekly; pupils can enter at any time. Fee, £21, which will be accepted as part premium; and the course as part time of any subsequent indenture.

A Special Practical Tuition Class will commence early in October, for the practical examination in Mechanical Dentistry for the L.D.S.

Evening Classes are arranged each term in Crown and Bridge Work, Special Methods in Mechanical Dentistry including an Improver's Course, and Manual Training.

Further particulars and full syllabus may be obtained from the Principal,—

GEORGE CUNNINGHAM, M.A. Cantab., D.M.D. Harvard Univ.,
L.D.S., R.C.S.Eng.

# V. GENERAL HOSPITALS.

## CHARING CROSS HOSPITAL.

*Dental Surgeon*—J. F. COLYER, L.R.C.P., M.R.C.S., L.D.S., who attends at the Hospital, two days a week, at 9 a.m., for Dental Operations. A course of Lectures on Dental Surgery is also given during January, February, and March, and Tutorial classes three days each week throughout the year by Mr. COLYER.

Students may serve as assistants to the Dental Surgeon for a period of three months.

The composition fee for dental students is 54 guineas, or 60 guineas, payable in two instalments of 30 guineas each.

A proportionate reduction of the above fees will be made to those students who have completed part of the curriculum at a recognized institution.

The hours of lectures have been specially arranged to suit the convenience of dental students. Charing-cross Hospital is within three minutes' walk of the Dental Hospital of London.

For further information apply to the Dean, Dr. Montague Murray, or to the Librarian and Secretary, Mr. J. Francis Pink, at the office of the Medical School, Chandos Street, Charing-cross, between the hours of 10 and 4.

## LONDON HOSPITAL AND MEDICAL COLLEGE.

*Dental Surgeons*—Mr. CUNNINGHAM & Mr. DOLAMORE.

### DENTAL DEPARTMENT.

Mr. Cunningham and Mr. Dolamore give practical instruction during the Winter and Summer Sessions on Mondays, Tuesdays, Wednesdays and Thursdays at 9 a.m. In selecting from Candidates for the office of Dental Assistant, priority will be given to those who have attended the greatest number of Lectures on Dental Pathology and Surgery, and have also been the most punctual in attendance in the Dental Department. A class for special instruction in filling teeth will be formed each term. Candidates for Dressership must undertake to attend regularly on Mondays and Thursdays, or on Tuesdays and Fridays, for three months, and to follow the practical course of demonstrations.

### DENTAL SURGERY.

By GEO. CUNNINGHAM, M.A. Cantab., L.D.S. Eng., D.M.D. Harv., and W. H. DOLAMORE, M.R.C.S., L.R.C.P., L.D.S. Eng., Surgeon-Dentists to the Hospital.

Thursday, at 11 a.m.

This Course of Lectures, specially arranged for Medical Students, will be delivered during May and June.

The Lectures will be supplemented by demonstrations of practical work and will be specially directed to meet the requirements of the Medical Practitioner. It will comprise a short description of the Anatomy and Physiology of the Teeth, special attention being given to Oral Hygiene.

*Irregularities of the Teeth*, with special reference to cases which may be treated by surgical means as distinguished from those requiring dental appliances.

*Dental Caries* and its treatment, which will be specially directed to palliative dressings and simple fillings.

*Diseases of the Dental Pulp and Periosteum* and their treatment.

*Neuralgia and other affections* arising from dental causes.

The practical work will include exercises in the extraction of teeth on models specially prepared or on the Cadaver, and the preparation of cavities and simple fillings on Models specially prepared. The demonstrations will illustrate, as far as possible, the whole range of dental operations, with a view to showing what assistance can be afforded by the dental practitioner.

### DENTAL ASSISTANTS.

Two or more Dental Assistants are appointed every three months. The terms of office date from the first Tuesday in January, April, July, and October.

Application for further particulars with reference to these classes may be made to the Warden, at the College.

## KING'S COLLEGE, STRAND, W.C.

Special arrangements are made for Dental Students. Apply to the Dean.

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## MIDDLESEX HOSPITAL.

*Consulting Dental Surgeon*—J. S. Turner, M.R.C.S., L.D.S.
*Dental Surgeon*—W. Storer Bennett, F.R.C.S., L.R.C.P., L.D.S.
*Assistant Dental Surgeon*—W Hern, M.R.C.S., L.D.S.

Students who intend to become Licentiates in Dental Surgery of the Royal College of Surgeons are admitted to attend the requisite courses of Lectures—which are arranged to fit in with the work at the Dental Hospitals—and Hospital Practice on payment of a fee of 54 guineas, in one payment, or by instalments of £42 on entrance, and £21 at the beginning of the Second Winter Session.

A Short Course of Lectures will be delivered on this subject during November and December. The instruction will be such as is likely to be useful to gentlemen entering the Army or Navy or engaging in Provincial or Colonial practice. The Lectures will be supplemented by practical demonstrations, which will be given every week during the Winter and Summer Sessions by the Dental Surgeon and Assistant Dental Surgeon.

Further information may be obtained from W. Pasteur, M.D., the Dean, or from the Resident Medical Officer at the Hospital.

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## ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.

*Dental Surgeons*—Mr. Paterson, Mr. Ackery.

*Assistant Dental Surgeons*—Mr. Read, Mr. Ackland.

The Dental Department of the Hospital is open on Tuesday and Friday mornings at 9 o'clock The practice of the department is recognised by the Royal College of Surgeons.

The fee for general subjects for Dental Students for the first winter is £33 1s. 6d., for the first summer £33 1s. 6d., or a single payment of £66 3s.

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## ST. GEORGE'S HOSPITAL.

*Dental Surgeon*—H. L. Albert, M.R.C.S.

Mr. Albert attends at the Hospital on Mondays and Fridays at 12 noon; his assistant on Tuesdays and Saturdays, at 12 noon, and on Thursdays at 9 a.m. for Dental operations.

Fees for general subjects in Dental Surgery, exclusive of Practical Chemistry, £50, or £55, in two instalments: first year, £30; second year £25.

Further information can be obtained by application to Dr. Isambard Owen, Dean of the Medical School.

## ST. MARY'S HOSPITAL MEDICAL SCHOOL.

*Dental Surgeon*—MORTON SMALE, M.R.C.S., L.D.S.

Practical instruction in Dental Operations is given on Wednesdays and Saturdays at 9 a.m. Dressers are appointed who hold office for three months.

For prospectuses and further information apply to the School Secretary, Mr. FREDERIC H. MADDEN.

GEORGE P. FIELD, Dean of the School.
ARTHUR P. LUFF, M.D., Sub-Dean.

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## ST. THOMAS'S HOSPITAL.

*Dental Surgeon*—CHARLES EDWIN TRUMAN, M.A. Cantab, M.R.C.S., L.D.S.

*Assistant Dental Surgeon*—Vacant.

Gentlemen may receive instruction in diseases of the teeth, are appointed dressers, and can undertake operations, subject to the supervision of the Dental Surgeons, Tuesdays and Fridays at 10 a.m.

Numerous cases of irregularity of the teeth, and the application of artificial appliances, are undertaken during the term.

The fee for attendance on the *general* subjects required of the students in Dental Surgery, is, for the two years, £65, or by instalments, £55 for the first year, and £15 for the second year.

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## UNIVERSITY COLLEGE HOSPITAL.

*Dental Surgeon*—SIDNEY SPOKES, M.R.C.S., L.D.S.

Mr. Spokes attends at the Hospital on Tuesdays and Fridays, at 9.30 a.m. and delivers a Course of Lectures on Fridays at 5 p.m., during the months of November and December.

At University College a material reduction in the fees is made for students who are entered at a recognised Dental Hospital. For those who do not require Chemistry and Materia Medica, there is a Composition Fee of 50 guineas.

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## WESTMINSTER HOSPITAL.

*Consulting Dental Surgeon*—J. WALKER, M.D., M.R.C.S., L.D.S.

*Dental Surgeons*—C. W. GLASSINGTON, M.R.C.S., L.D.S., & E. GARDNER, L.D.S.

### *Dental Department.*

The Dental Surgeons, Mr. Glassington and Mr. Gardner, attend at 9.15 a.m. on Wednesdays and Saturdays, and Tuesdays and Thursdays respectively.

Mr. Glassington attends at 9.15 a.m. on Wednesdays, and Saturdays for practical demonstration of diseases and operations of the teeth.

The fee for attendance on the Dental Practice is £2 2s. for three months, and £3 3s., for six months. The whole of the General Lectures and Surgical Practice required for the Dental Diploma of the College of Surgeons can be attended for £50 in one sum on entrance, or for two sums of £27 10s. payable at the beginning of each year.

Mr. Glassington will give a series of Demonstrations on Dental Surgery and Pathology, to meet the requirements of the general student of Medicine, at an hour to be determined at the commencement of the Session.

A Scholarship value £20 is offered annually in September for Competition to commencing Dental Students.

The Annual Dinner will take place on the opening day. Sir George S. Robertson, K.C.S.I., in the chair. The Summer Session begins on May 1st. The Annual Distribution of Prizes, followed by a Conversazione will take place at the commencement of the Session.

The Session will commence on Monday, October 3rd.

## HARVARD UNIVERSITY DENTAL DEPARTMENT,

## BOSTON, MASS., U.S.A.

The Sessions of this School begin the last Thursday in September, and end the last Wednesday in June, making nine months of practically continuous work in each year.

General Anatomy, with Dissections, Physiology, General Chemistry, Hygiene, Histology, and Embryology, and Bacteriology, are the studies of the first year. Of the second year they are Operative and Mechanical Dentistry, and Orthodontia, Crown and Bridge work, and Metallurgy, Materia Medica and Therapeutics, Oral Anatomy and Physiology, and Bacteriology, Dental Pathology and Oral Surgery. Of the third year Operative and Mechanical Dentistry, and Orthodontia, Crown and Bridge work and Metallurgy, Neurology, and Surgical Pathology and Surgery. The Student can also attend gratuitously all the *lectures* in any other department of the University.

The Infirmary furnishes abundant facilities, averaging 8,000 operations, of which a large proportion consists of filling teeth, every year.

The University degree D.M.D (Dentariæ Medicinæ Doctor) is conferred on all who fulfil the requirements.

For the first year a student is a member of the school the fee is 200 dols.; for the second year, 150 dols, for the third year 150 dols., and for any subsequent year, 50 dols

For further information and catalogues address, Eugene H. Smith, Dean, 283, Dartmouth Street, Boston, Mass.

# VI.—THE LICENSING CORPORATIONS.

## Comparative Summary of Regulations for the Licence in Dental Surgery.

| | Royal College of Surgeons, England * | Royal College of Surgeons, Edinburgh. | Faculty of Physicians and Surgeons, Glasgow. | Royal College of Surgeons, Ireland. |
|---|---|---|---|---|
| 1—PRELIMINARY EXAMINATION..................... | Compulsory on all who commenced their Professional Education after July 22nd, 1878. Must be registered as a Dental Student at the office of the General Medical Council, 299, Oxford St., London, W. | Compulsory on all who commenced their Professional Education after July 22, 1878. Must be registered. | Compulsory on all who commenced their Professional Education after August 1st, 1878. Must be registered. | All Examinations in General Education recognised by the General Medical Council. Must be registered. |
| 2—Age at which the Candidate may present himself ........................... | Twenty-one. | Twenty-one. | Twenty-one. | Any age, but diploma cannot be granted until he is twenty-one. |
| 3—DURATION OF PROFESSIONAL EDUCATION...... | Four years subsequent to registration. | Four years. | Four years. | Four years. |
| 4—COURSES OF LECTURES, &c., to be attended at a recognized School:— | | | | |
| Anatomy ..................... | One course of six months. | One Winter course. | One course of 6 months. | One course. |
| Physiology .................. | Ditto. | One course of 6 months. | One course of 6 months. | One course. |
| Practical Physiology ...... | Ditto. | ... | ... | One course. |
| Surgery ........................ | Ditto. | One Winter course. | One course of 6 months. | One course. |
| Medicine ..................... | Ditto. | Ditto. | Ditto. | Ditto. |

* The above Regulations apply only to Candidates who registered as Dental Students before the 1st of January, 1897.

|  | Royal College of Surgeons, England.* | Royal College of Surgeons, Edinburgh. | Faculty of Physicians and Surgeons, Glasgow. | Royal College of Surgeons, Ireland. |
|---|---|---|---|---|
| Chemistry ..................... | Instruction. | One Winter course. | One course of 6 months. | One course. |
| Materia Medica ............ | Instruction. | One three months' course. | Ditto. 3 | One course. |
| Dissections and Demonstrations .................. | Twelve months. | Twelve months. | Twelve months. | Two courses. |
| Practical Chemistry and Metallurgy ............... | Instruction. | One three months' course. | One course of 3 months. | 1 course. Three months. |
| Practice of Surgery ...... | Two Winter Sessions. | Twelve months.* | One course of 6 months. |  |
| Clinical Lectures in General Hospitals ............ | Two Winter Sessions. | Twelve months.* | Two courses of 12 months | One year. |
| Dental Anatomy and Physiology ...................... | Two courses. | One course. | 24 Lectures (Six months.) | One course. |
| Dental Surgery and Pathology ....................... | Ditto. | Ditto. | 20 Lectures. | Two courses. |
| Metallurgy .................. | One course. | ... | One course. |  |
| Dental Mechanics ......... | Two courses. | One course. | Not less than 12 Demonstrations | Two courses. |
| Practical Instruction in Mechanical Dentistry... | Three years under a competent Practitioner, all of which may be previous to Registration. | Three years with a registered Dental Practitioner. | Three years under a Registered Dental Practitioner. | Three Years under a Registered Dentist. |
| Practice of Dental Surgery in a recognized Dental Hospital, or in the Dental Department of a recognized General Hospital | Two years. | Two years. | Two years. | Two years. |
| 5—FEE ........ ............... | £10 10s. On and after the 1st Jan. 1900, the fee will be raised to £21. | £10 10s. Candidates who commence after Oct. 1, 1896, shall pay £15 15s. | £10 10s. for Candidates registered before Oct., '96, Candidates registered after that date, £15 15s. | £21. |
| 6—LEAST period during which unsuccessful Candidates are referred to their studies .............. | Six months, subject to the decision of the Board. | Three months. | Till next Exam. period. | Three months. |

| | | | | |
|---|---|---|---|---|
| PARTICULARS OF EXAMINATION ............... | (A) *Written*:<br>On General Anatomy and Physiology, General Pathology and Surgery, Dental Anatomy and Physiology, and Dental Pathology and Surgery.<br>(B) *Practical*.<br>(1) On the treatment of Dental Caries, and may be required to prepare and fill cavities with Gold or Plastic filling or material, or to do any other operation in Dental Surgery.<br>(Candidates must provide their own instruments.)<br>(2) On the Mechanical and Surgical treatment of the various irregularities of children's teeth.<br>(3) On Mechanical Dentistry.<br>(C) *Oral*.<br>Comprises the several subjects included in the curriculum of professional education, and is conducted by the use of preparations, casts, drawings, &c. | *Written and Oral*:<br>First Part—Anatomy, Chemistry, Physiology.<br>Second Part—Surgery, Medicine, Therapeutics, and special subjects, of Dental Anatomy and Physiology, Dental Surgery & Pathology, and Dental Mechanics. Registered Medical Practitioners are examined on the specialsubjects only. Practical Examination given in a Dental Hospital in Dental Surgery, Pathology & Mechanics.<br>* Students who began before July, 1895, are not required to take more than six months. | *Written, Oral & Practical*:<br>1st part—Anatomy, Physiology, Chemistry, and Metallurgy.<br>Second Part—Surgery, and Medicine, and special Dental subjects.<br>Practical Examination at a Dental Hospital. Candidates are to bring all the dental instruments and materials they may think necessary, with the exceptionof extracting Instruments.<br>Also practical Examination in Mechanical Dentistry. | *Written and Oral*:<br>On all the subjects of the Curriculum.<br>Dental Surgery, and Dental Mechanics.<br>SINE CURRICULO:—<br>Candidates in practice before July, 1878, and whose names are on a Dental Register are admitted to the examination *Sine Curriculo*. Fee £26 5s. |
| —DATES OF EXAMINATIONS ................... ... | May and November.<br>Candidates who reg. on or after Jan.1, '97 are subject to new Regs., which can be obtained on application. | First examination.—<br>Tuesday, Nov. 1, 1898,<br>Thursday, April 13, 1899.<br>Monday, July 24, 1899.<br>Second exam. on Thursday following. | 1898 October 4—8.<br>1899 April 3—8.<br>„ July 3—7. | Feb. May & Nov. |
| For further information apply to | MR. F. G. HALLETT,<br>Examination Hall, Victoria Embankment,<br>London, W. | JAS. ROBERTSON, Solicitor,<br>Clerk of College,<br>48, George Square, Edin. | Dr. ALEX. DUNCAN,<br>Faculty of Physicians and Surgeons,<br>Glasgow. | The Registrar,<br>Royal College of Surgeons, Dublin. |

# VII. SCIENTIFIC ASSOCIATIONS.

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## ODONTOLOGICAL SOCIETY OF GREAT BRITAIN

## 40, LEICESTER SQUARE, W.C.

OFFICERS FOR 1897-98.

*President*—W. E. HARDING.

*Vice-Presidents*:

| RESIDENT. | NON-RESIDENT. |
|---|---|
| C. J. B. WALLIS. | J. F. COLE, (Ipswich). |
| JOHN ACKERY. | MALCOLM MACGREGOR, (Edinburgh). |
| C. WEST. | W. A. HUNT, (Yeovil). |

*Treasurer*—W. H. WOODRUFF.

*Librarian*—W. A. MAGGS. *Curator*—STORER BENNETT.

*Editor of the Transactions*—J. F. COLYER.

*Honorary Secretaries.*

J. H. MUMMERY, (Foreign). H. BALDWIN, (Council),
J. O. BUTCHER (Society).

*Councillors.*

| RESIDENT. | NON-RESIDENT. |
|---|---|
| A. SMITH. | G. CUNNINGHAM, (Cambridge). |
| G. D. CURNOCK. | C. B. MASON, (Scarborough). |
| H. J. GOULD. | J. J. ANDREW, (Belfast). |
| H. L. ALBERT. | E. N. WASHBOURNE, (Ripon). |
| H. J. KLUHT. | J. S. AMOORE, (Edinburgh). |
| H. LLOYD WILLIAMS. | W. R. ACKLAND, (Bristol). |
| A. E. C. WOODHOUSE, | A. A. MATHEWS, (Bradford.) |
| J. H. BADCOCK. | MORTON HUGHES, (Croydon). |
| C. W. BATEMAN. | J. A. FOTHERGILL, (Darlington). |

### EXTRACT FROM THE BYE-LAWS.

*Objects and Constitution of the Society.*

The Society is instituted for the encouragement and diffusion of knowledge in Dental Surgery, and for the promotion of intercourse among Members of the Dental Profession.

The Society shall consist of Resident, Non-Resident, Corresponding, and Honorary Members.*

1. The Resident Members shall consist of gentlemen residing or practising wholly or partly in London or within ten miles of the General Post Office, St. Martin's-le-Grand.
2. The Non-Resident Members shall consist of gentlemen wholly practising beyond ten miles from the General Post Office.
3. The Corresponding Members shall consist of distinguished gentlemen residing in the Colonies of Great Britain or in Foreign Countries.

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* Candidates for the Resident, Non-Resident, or Corresponding Membership of the Society shall not be eligible unless they practise as Dental Surgeons, or are interested in the progress of Dental Surgery, and are also Licentiates in Dental Surgery, or qualified Practitioners of Medicine or Surgery: or possess such a Diploma or Degree as in the opinion of the Council, will qualify them for the Membership of the Society.

4. The Honorary Members shall consist of distinguished Practitioners of Dental Surgery who have retired from practice, of distinguished Medical Practitioners, and of gentlemen distinguished in any department of Science.

Persons who advertise in the public journals, or by circular, either their profession or their professional attainments or public appointments, or anything relating to their mode of practice or charges, or who expose for public inspection specimens of operative or mechanical Dentistry, or conduct their practice in any way which in the opinion of the Council of this Society, is derogatory to the respectability of the Profession, shall not be considered eligible for nomination as members.

No person being the proprietor of a secret remedy, or holding a patent relating to the requirements of Dental Practice, shall be a member of this Society.

### *Election and Admission of Resident and Non-Resident Members.*

Candidates for Resident Membership shall be recommended by four or more Members, two at least signing from personal knowledge. Candidates for Non-Resident Membership shall be recommended by three members, one at least signing from personal knowledge.

All recommendations for resident or non-resident members shall be submitted to, and approved of, by the Council, before being proposed to the Society for ballot.

### *Contributions of Members.*

Every person elected a Resident Member shall pay Three Guineas as an Admission Fee and an Annual Subscription of Two Guineas, *in advance.*

Every person elected a Non-Resident Member shall pay Two Guineas as an Admission Fee and an Annual Subscription of One Guinea in advance.

The Entrance Fees and First Annual Subscriptions shall be paid on admission, and the subsequent Annual Subscriptions in the month of November in each year; but new members proposed at or after the January Meeting, shall not be required to pay any Subscription for the current Session.

### *Ordinary Meetings.*

The Ordinary Meetings of the Society shall be held on the first Monday in each month, from November to June, both inclusive, at 8 p.m. precisely, except in the month of January, or when an Act of Parliament holiday occurs on that day, the meeting shall be held on the Monday next ensuing.

Each Member may introduce two Visitors at these Meetings on writing the Visitors' names in a book to be kept for that purpose. The same Visitors will not be admitted more than three times during one Session.

### *Annual General Meeting.*

The Annual General Meeting of the Society for the election of the Officers and Councillors, &c., shall be held on the evening of the first Monday in June every year.

### *Society's Transactions.*

The Transactions of the Society, under the designation of "Transactions of the Odontological Society of Great Britain," shall be printed at such times and in such manner as the Council shall direct.

The "Transactions" shall be presented to all Resident and Non-Resident members of the Society who have paid their Annual Subscriptions.

## ODONTO-CHIRURGICAL SOCIETY OF SCOTLAND,

31, CHAMBERS STREET, EDINBURGH.

*President*—J. S. AMOORE, L.D.S.

*Vice-Presidents.*

Mr. REES PRICE, L.D.S. Mr. J. GRAHAM MUNRO, L.D.S.

*Council.*—Messrs. J. STEWART DURWARD, L.D.S., DAVID MUNRO, L.D.S., J. T. JAMIESON, L.D.S., W. CAMPBELL, M.B., C.M., L.D.S.

*Treasurer*—Mr. W. GUY, F.R.C.S., L.R.C.P.E.. L.D.S.

*Librarian*—Mr. D. R. CAMPPELL, L.D.S.

*Secretaries*—Mr. H.B. EZARD, L.D.S., Mr. FREDK. J. TURNBULL, L.R.C.P., S.E., L.D.S.

*Ordinary Meetings.*—The Society meets on the second Thursdays of November, December, January, February and March.

### EXTRACTS FROM THE CONSTITUTION AND LAWS.

### *Name and Objects.*

The Society shall be named the "Odonto-Chirurgical Society," and shall have for its objects the Promotion and Diffusion of Knowledge in matters connected with Dental Surgery; the furtherance of communications on such subjects by members of the Society; and otherwise to advance the interests of Dental Surgery as a branch of Medicine.

### *Ordinary and Honorary Members.*

The Society shall consist of Ordinary, Honorary, and Corresponding Members.

(*A.*) Ordinary Members. Gentlemen shall be eligible for Ordinary Membership who hold the Licentiate in Dental Surgery of any of the Licensing Bodies of Great Britain or Ireland, or a Colonial or Foreign qualification recognised by the General Medical Council, entitling them to practise dentistry in Great Britain

(*B.*) Honorary Members. Gentlemen (practising or retired) who hold a qualification recognised by the General Medical Council, or Foreign or Colonial Dentists holding a qualification recognised in their own country, who may have distinguished themselves in the practice of, or in connection with Dentistry, and Medical or Scientific men who may have distinguished themselves in connection with Dentistry, shall be eligible as Honorary Members.

(*C*) Corresponding Members. Gentlemen resident in the Colonies or Foreign Countries, holding qualifications recognised in their respective countries shall be eligible as Corresponding Members.

The Ordinary Members shall have vested in them the Government of the Society, and all cases not otherwise specified shall be decided by them by a majority of votes by ballot if required,

### *Obligations of Members.*

No member shall be permitted to advertise his profession, his modes of practice, or his charges, either in the public journals or by circular. They shall not be permitted to expose specimens of their work for public inspection, nor to carry on their practice in connection with any other business, nor to hold any patent relating to Dental practice, nor to conduct themselves in any way which the Society may consider derogatory to the Profession, so long as they continue members of the Society. But members who practise in towns other than that in which they reside, shall be allowed to intimate their visits; such intimations being subject to the approval of the Council.

*Applications for Membership.*

Candidates for admission as Members of the Society shall be recommended by an Ordinary Member, and the recommendation seconded by another. After being approved by the Council, such recommendation shall be read to the Society at an Ordinary Meeting, and shall lie over to the next, when the Candidate shall be balloted for, when two-thirds of the Members present must be in his favour to secure his election.

*Contributions.*

Ordinary Members shall pay an Entrance Fee of Half a Guinea, and Half a Guinea of an Annual Subscription in advance. All Annual Subscriptions to date from the 1st March preceding the Candidate's admission.

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## NORTH OF ENGLAND ODONTOLOGICAL SOCIETY, NEWCASTLE-ON-TYNE.

*President*—W. Graham Routledge, L.D.S. Edin.

*Vice-Presidents:*

S. Brown, | J. T. Jameson, L.D.S. Edin.

*Hon. Treasurer*—W. G. Routledge, L.D.S. Edin.

*Hon. Secretaries:*

J. G. Ranken, L.D.S. Eng., 14, Grange Crescent, Sunderland.
W. D. Moon, L.D.S. Eng., 8, Jesmond Road, Newcastle.

*Council:*

John Kekwick, L.D.S. Eng.
J. W. Daniels, L.D.S. Edin.
R. L. Markham, L.D.S.I.
T. E. King, L.D.S. Eng.
J. A. Fothergill, M.R.C.S., &c.
W. Somerville-Woodiwis, L.D.S. [Edin.

*Extract from Laws.*

The Society shall have for its objects the diffusion of knowledge, and the promotion of intercourse among Dentists, and the advancement of the general interests of the Dental Profession.

The Society shall consist of Ordinary and Honorary members:—

The Ordinary Members shall consist of gentlemen who are practising or have practised as dentists, and are registered under the Dentists' Act of 1878.

*Obligation of Members.*

Members shall not be permitted to advertise in the public journals, or by circulars, either their professional attainments, or public appointments, or anything relating to their modes of practice or charges: or to expose for public inspection specimens of operative or mechanical dentistry, or conduct their practices in any way which in the opinion of the Council is derogatory to the Profession.

*Application for Membership.*

Candidates for admission as Members shall be recommended by one Member from personal knowledge, and by one Member from general knowledge.

*Meetings.*

The Ordinary Meetings will be held in Newcastle-on-Tyne, on the third Thursday of each of the months, from October to March inclusive, at 6 p.m.

*Contributions.*

Members shall pay an Entrance Fee of five shillings on admission, and an annual subscription of half a guinea in advance.

## THE BRITISH DENTAL ASSOCIATION,

(*Incorporated June* 3rd, 1880,)

40, LEICESTER SQUARE, LONDON.

*President*—W. A. HUNT, L.R.C.P. Lond., M.R.C.S. Eng.

*President-Elect*—R. WENTWORTH WHITE, M.R.C.S., L.D.S. Eng.

*Vice-Presidents.*

SIR EDWIN SAUNDERS, F.R.C S. | JOHN SMITH, M.D., F.R.C.S, Edin.

J. SMITH TURNER, M.R.C.S., L.D.S. Eng.

*President of Representative Board*—J. H. MUMMERY, M.R.C.S., L.D.S.Eng.

*Treasurer*—W. HERN, M.R.C.S., L.D.S., Eng.

*Honorary Secretary*—W. B. PATERSON, F.R.C.S., L.D.S. Eng.

*Extracts from Memorandum of Association and Bye-laws.*

The objects for which the Association is established are the promotion of Dental and the allied Sciences, and the maintenance of the honour and the interests of the Dental Profession by

"The Periodical meetings of the Members of the Association and the Dental profession generally, in different parts of the country.

"The publication of a periodical journal, and by

"The maintenance of the spirit and provisions of the Dentists' Act, by such lawful means as may be necessary, &c., &c."

*Extracts from the Bye-laws.*

A person who is registered in the Dentists' Register shall be eligible for election as a member of the Association, provided that he be of good character; that he does not conduct his practice by means of the exhibition of Dental specimens, appliances, or apparatus in an open shop, or in a window, or in a showcase exposed to public inspection; or by means of public advertisements or circulars, describing modes of practice, or patented or secret processes; or by the publication of his scale of professional charges.

Any registered Dental practitioner not disqualified by any Bye-law who shall be recommended as eligible by any three Members of the Association (the recommendation of one being from personal knowledge), and who has signed the appended form of application for admission and agreement as to terms of Membership, may be elected a Member by the Representative Board or by the Council of a recognized Branch.

The subscription is one guinea per annum, and each member is entitled to a copy of the Journal of the Association monthly, and to attend the Annual Meetings of the Association.

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## THE MIDLAND BRANCH OF THE BRITISH DENTAL ASSOCIATION.

EXTRACT FROM BYE-LAWS.

1. Composed of Members of the British Dental Association who reside in the Midland and North Western Counties of England, and of Associates who can fulfil the conditions laid down in the Bye-laws. The Annual Meeting usually takes place in June; and informal meetings are held in February and October.

2. The Association shall consist of Members and Associates. No one shall be eligible for membership who is not already a member of the British Dental Association. Any registered Practitioner of good character, who does not conduct his practice by means of the exhibition of Dental Specimens, appliances or apparatus in an open shop, or in a window, or in a show case exposed to public inspection; or by means of public advertisements or circulars

describing modes of practice; or patented or secret processes; or by the publication of his professional charges, may be admitted as an Associate. Associates shall be entitled to all the privileges of the Branch Association, but shall not be entitled to vote or hold office therein.

3. Any member of the British Dental Association may be elected a Member of the Branch by the Council of the Branch, at any of their ordinary Meetings, on his sending a written application for election to the Secretary of the Branch.

4. Any registered Practitioner who can subscribe to the conditions laid down in Bye-law 2, and who shall be recommended as eligible by any three members or Associates, may be elected an Associate by the Council, on his forwarding the recommendation and his subscription to the Honorary Secretary of the Branch.

5. The Annual Subscription to the Branch is as follows:—Members, Five Shillings; Associates, Ten Shillings. The subscription to date from the time of election, and from the 1st of January in each subsequent year, and to be paid in advance, but Members or Associates elected in the months of October, November, or December, shall only pay one subscription for the remainder of that year and the following one.

The Autumnal Meeting will be held at Blackburn in the month of October, and the next Annual Meeting will be held at Manchester in the month of June.

Honorary Secretary, T. E. KING, 10, Museum Street, York.

## METROPOLITAN BRANCH OF THE BRITISH DENTAL ASSOCIATION.

Composed principally of members of the British Dental Association practising within the London postal district. The Branch meets three or four times a year. One meeting in the Summer is devoted to Demonstrations, and the Annual Meeting is held in January.

The qualifications of Membership are similar to those in the other Branches.

Honorary Secretary, W. H. DOLAMORE, 37, Queen Anne Street, Cavendish Square, W.

## BRITISH DENTAL ASSOCIATION, WESTERN BRANCH.

A person who is registered in the Dentists' Register shall be eligible for election as a Member of the Branch, provided he be of good character; that he does not conduct his practice by means of the exhibition of Dental specimens, appliances, or apparatus in an open shop, or in a window, or in a show case exposed to public inspection; or by means of public advertisements; or circulars describing modes of practice, or patented or secret processes; or by the publication of his scale of professional charges.

Any dental practitioner, being a member of the British Dental Association, who can subscribe to the conditions laid down in Bye-law 4, and has been recommended as eligible by any three members of the Branch may be elected a member of the Branch by the Council.

NOTE.—If the applicant be not previously a member of the British Dental Association, the Council has power to elect to the Association.

Hon. Sec., THOMAS ARTHUR GOARD, 6, West Southernhay, Exeter.

## BRITISH DENTAL ASSOCIATION. EASTERN COUNTIES BRANCH.

*Districts.*

Norfolk, Suffolk, Cambridgeshire, Essex, Lincolnshire, Northamptonshire, Bedfordshire, Hertfordshire, and Bucks.

*Bye Law.*

Any Registered Dental Practitioner, who shall be recommended as eligible by any three members of the Branch, (one being from personal knowledge,) may be elected a member by the Council. The election to be by ballot; three black balls to exclude.

*Honorary Secretary*, A. HOPEWELL SMITH, 26, Berkley Square, W.

## BRITISH DENTAL ASSOCIATION, SOUTHERN COUNTIES BRANCH.

The Branch shall consist of Members, Honorary Members, and Associates. *No one shall be eligible for Membership who is not already a Member of the British Dental Association.* Any registered practitioner of good character, who does not conduct his practice by means of the exhibition of Dental specimens, appliances, or apparatus in an open shop, or in a window; or in a showcase exposed to public inspection; or by means of public advertisements, circulars, or notices, describing his qualifications, appointments, scale of charges, modes of practice, or patented or secret processes, may be elected a Member or an Associate. Associates shall be entitled to all the privileges of the Branch Association, but shall not be entitled to vote, or hold office therein.

## BRITISH DENTAL ASSOCIATION, SCOTTISH BRANCH.

A person who is registered in the Dentists' Register shall be eligible for election as a Member of this Branch, provided he be of good character; that he does not conduct his practice by means of the exhibition of dental specimens, appliances, or apparatus in an open shop, or in a window, or in a show case exposed to public inspection; or by means of public inspection: or by means of public advertisements; or circulars describing modes of practice, or patented or secret processes; or by the publication of his scale of professional charges.

Any dental practitioner who can subscribe to the conditions laid down in Bye-law 4, who has been recommended as eligible by any of the members of this Branch, may be elected a member of the British Dental Association by the Council, and is eligible for election to the Branch.

Hon. Sec., D. BAILLIE WILSON, 29, Minto Street, Edinburgh.

## STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF LONDON, LEICESTER SQUARE, W.C.

The object of the Society is the consideration of matters generally and specially appertaining to Dentistry. The affairs of the Society are managed by a Council consisting of a President, two Vice-Presidents, Treasurer, two Secretaries, Curator, and nine Councillors, these Councillors consisting of five senior and four junior students. The President is chosen from the past Students who have obtained their degree of L.D.S.; the Vice-Presidents from past Students with or without qualification.

The entrance fee for ordinary members is half-a-crown, and there is an annual Subscription of the same amount.

Ordinary meetings are held at 7.30 p.m. on the second Monday in every month, from October to March inclusive during the winter Session, also a meeting on the second Monday in May during the Summer Session. The annual meetings for the election of officers and other business is held on the third Monday of January in each year.

Every member has the power of introducing one visitor, not being a Student of the Hospital or School, to the meetings, with the consent of the President. Visitors are invited to take part in the discussion of the papers and clinical cases.

There is a Library and a Museum in connection with the Society, both being under the superintendence of the Curator.

The Council offer a prize, value £3 3s., at the end of each year, for the best paper read before the Society during that year.

## STUDENTS' SOCIETY OF THE NATIONAL DENTAL HOSPITAL AND COLLEGE,

### GREAT PORTLAND STREET, W.

This Society, which was established March 16, 1878, was constituted for the encouragement and diffusion of knowledge in Dental Science, and for the promotion of intercourse among its Members: and all Students of Dental Science are eligible for Membership. All candidates for Membership must be approved by the Council before being proposed to the Society for election. The Entrance Fee is 2s. 6d., and the Annual Subscription, 2s. 6d., to be paid in advance. The Ordinary Meetings of the Society are held on the first Friday in each month, from October to June, both inclusive. The meetings commence at 8 p.m. precisely. Each member may introduce two visitors, not being Students of the Hospital or College, but the same visitors may not be admitted more than three times during one Session. The President is Dr. **Pare** and the Secretary Mr. **Thorne**.

## THE STUDENTS' SOCIETY OF THE VICTORIA DENTAL HOSPITAL OF MANCHESTER.

The object of the Society is the consideration of matters generally and specially appertaining to Dental Science, and for the promotion of intercourse amongst its members.

The affairs of the society are managed by a Council consisting of a President, two Vice-Presidents, Treasurer, two Secretaries, Curator and Librarian, Editor of Transactions, and four Students of the Hospital.

The General Meeting is held on the last Tuesday in every month from October to March inclusive and the Annual Meeting is held in May of each year.

Every member has the power of introducing two Visitors not being Students of the Hospital to a General meeting with the consent of the President.

A Prize of £2 2s. is offered for the best Paper read before the Society by a Student.

The Libraay has recently received many additions, and a feature of the Meetings is Microscopical Research.

Members are permitted to attend meetings of the Manchester Odontological Society.

## SCHOOL DENTISTS' SOCIETY.

The objects of this Society are (1) mutual assistance in promoting School Dentistry, and (2) the holding of meetings for the consideration of all subjects connected with the special work of School Dentists.

All present or retired School Dentists or Dental Surgeons of Children's Hospitals are eligible for election as members of the Society, subject to certain conditions.

The Annual General Meeting is held in London. There may be one or two other General Meetings in the course of the year, the times and places to be arranged by the Council.

Hon. Sec.—Mr. W. J. **Fisk**, St. Alban's Road, Watford.

## STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF LIVERPOOL.

This Society is constituted for the consideration of matters generally and specially appertaining to Dental Surgery.

Candidates for membership must be approved by the Council before being proposed to the Society for election. Such proposals are posted during one meeting of the Society, and remain so posted until the next monthly meeting when the candidate is balloted for. No candidate is elected unless he have the votes of two-thirds of the members present. Nine to form a quorum.

Every member has the power of introducing two visitors, not being Students of the Hospital or School, to the evening meeting, with the consent of the President.

An ordinary meeting is held on the third Monday in every month, from October to March inclusive; the chair is taken at eight o'clock p.m. The annual meeting for the election of officers and other business will be held in March, on the third Friday to receive the Treasurer's and Secretary's report.

## BIRMINGHAM DENTAL STUDENTS' SOCIETY.

The object of the Society is for the reading and discussion of Papers for the furtherance of Dental Science amongst its Members.

Candidates for Membership must be proposed, seconded, and elected at one of the Fortnightly Meetings, or at the Annual Meeting.

Every Member shall with the consent of the President have the power of introducing a visitor to the meeting, who may take part in discussions, but is not entitled to vote on any business.

An ordinary meeting is held twice every month during the winter Session at Mason University College, commencing at 7 p.m.

The Annual Meeting for the election of officers and other business, will be on the last Thursday in October next.

The President is A. T. HILDER, Esq., L.D.S. Eng.

All communications for the above Society should be addressed to G. V. SMALLWOOD, Hon. Sec., either at Mason University College, or the Dental Hospital, Birmingham.

## THE EDINBURGH DENTAL STUDENTS' SOCIETY.

This Society, instituted in July 1885, was established for the consideration of matters generally, and specially pertaining to Dental Science, the advancement and welfare of its members, and the facilitating of social intercourse among them. These objects being promoted by means of Papers, Debates, Clinics, Casual Communications, Social Gatherings, and by the various sections of the Athletic Club of the Society.

Ordinary meetings are held in the Board Room of the Dental Hospital, on the first Monday of each Month, from November to March inclusive, and the Annual Dinner is held as near the date of the Annual General Meeting as convenient,

Membership is open to all, who are, or have been, Students of the Edinburgh Dental School.

The President for Session 1898-99 is C. E. Page, L.R.C.P. & S., L.D.S.

Hon. Sec., W. Tweedie.

## DENTAL ASSISTANTS' ASSOCIATION OF GREAT BRITAIN.

The above Association has been established for the advancement and protection of Dental Assistants, and the temporary relief of Members when out of employment.

For further particulars apply to the Secretary, 30, Cursitor Street, Chancery Lane, London, W.C.

We have not been able to obtain any particulars of this Society this year.

British Journal of Dental Science

No. 737. LONDON, OCT. 1, 1898. Vol. XL.

# DENTAL MECHANICS.

By Harry Rose, L.D.S. Eng.

## Part IV.—Appliances and Devices for the Correction of Dental Irregularities.

(*Continued from page* 301).

The next case (Fig. 48), is that of a girl about the same age as the last, it is a well marked case of underhung bite. I am indebted to my colleague, Mr. Charles Glassington, for bringing this patient to my notice; he consulted with me as to the probable success of a denture. It was thought at first that a case could be made to cap over her upper teeth, and made to project sufficiently to bring the lower teeth into articulation, but the evil attending that mode of procedure

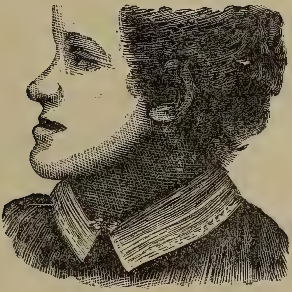

Fig. 48.

would have been the rapid decay of the covered up teeth and consequent worry and discomfort to the patient.

On examining the patient's mouth (Fig. 49), and building

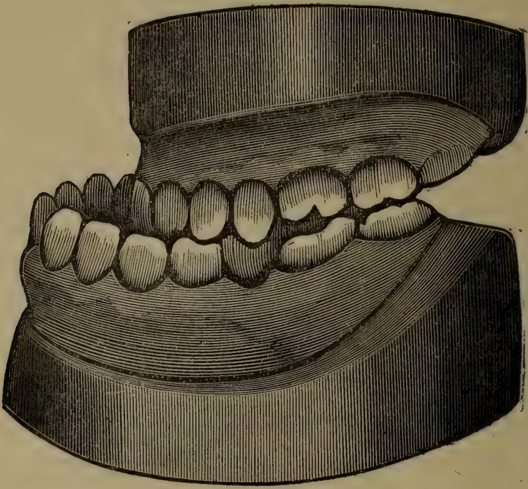

Fig. 49.

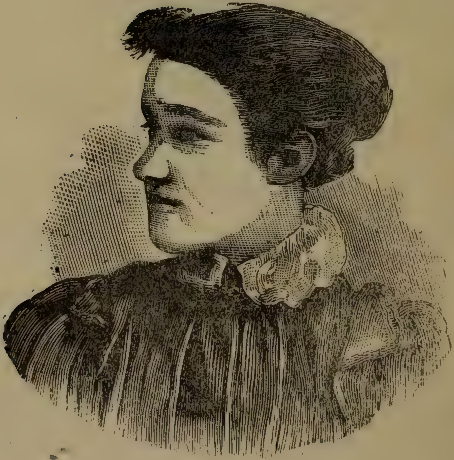

Fig. 50.

up a wax case to the upper, to give one an idea how the patient would look under the altered conditions, the result was very gratifying, and on raising the bite fully a quarter of an inch the appearance of the patient was improved stil more.

It now became a question as to the retention of any of her upper teeth, and feeling convinced that an edentulous upper presented the best chances of success, in which opinion Mr. Glassington concurred, he removed her upper teeth and made her a complete upper case. Figs. 48 and Fig. 50 are before and after the operation. One cannot but feel gratified that the results gained not only considerably improved the looks of the patient, but at the same time put her in possession of a useful dental armature instead of her own functionless ones.

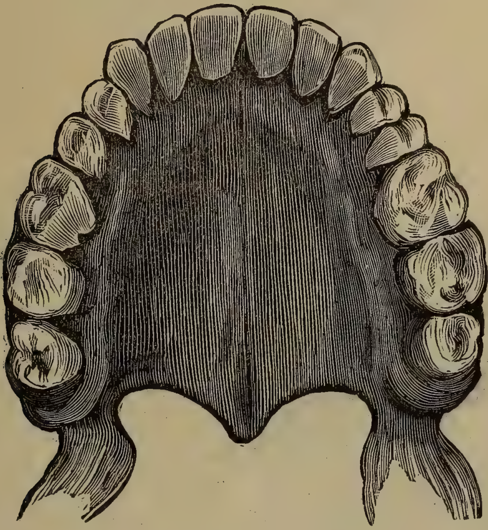

Fig. 51.

The only other case (open bite) in which I had to resort to such extreme measures was one in private practice. In this

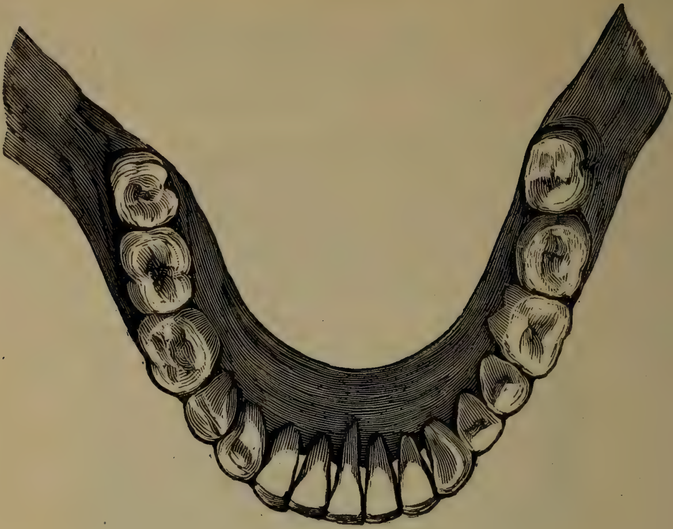

Fig. 52.

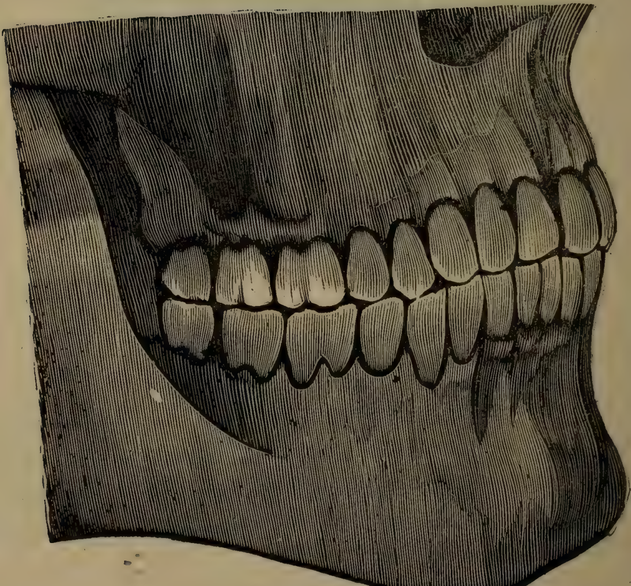

Fig. 53.

latter I was able to retain the patient's lower front teeth, and make up the depth of the upper case in continuous gum. The appearance of the patient in this case was also much improved, as well as her general health.

As a contrast to these abnormalities, and also to serve as a guide to those who in setting up teeth aim at reproducing a perfect arch, I have introduced here specimens of typical dental arches. Figs. 51 and 52 shew the arrangement of the teeth in an early Saxon skull. The teeth are somewhat worn, but no the slightest trace of decay is visible in the whole thirty-two teeth. The width across the palate of the upper and between the wisdom teeth in the mandible gives ample room for the teeth without crowding. Fig. 53 shows the articulation of the same jaws, and gives one a good idea as to what a perfect dental armature means. A similar skull to this, dug up at the same spot, is now, I believe, in the Fitzwilliam Museum at Cambridge, with a broken spear-head imbedded in it.

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# THE HUMAN TONGUE*

By Mr. J. W. Gibbons.

The human tongue in its uses and functions is the most comprehensive organ in the entire body. With the exception of the heart it is the most muscular organ of the system. It is covered by mucous membrane. The muscles which form the greater part of the substance of the tongue are called "Linguales;" these are attached to the mucous membrane, and by them the smaller and more delicate movements are performed. The tongue is fixed to the surrounding parts by the genio-glossi, the stylo-glossi, the genio-hyoglossi, and the superior constrictor of the pharynx muscles, and by these the larger movements of the organ are performed. The base or root of the tongue is directed backwards, and is connected with the os hyoides by the hyoglossal and the genio-hyoglossi muscle, and the hyoglossal membrane; with the epiglottis by three folds of mucous membrane which form the glosso-epiglottic ligaments, and with the soft palate by means of the anterior pillars of the fauces, and with the pharynx by the superior constrictor and the mucous membrane. The apex or tip of the tongue, which is thin and narrow, is directed forwards against the inner surface of the lower incisor teeth.

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* Read before the Students' Society, Victoria Dental Hospital, Manchester

The under surface of the tongue is connected with the lower jaw by the genio-hyoglossi muscles, from its sides the mucous membrane is reflected to the inner surface of the gums, and in front a distinct fold of that membrane, the frænum linguæ is formed beneath its under surface.

The tip of the tongue, part of the under surface, its sides and dorsum are free.

The blood supply of this organ is derived from the lingual, the facial and the ascending pharyngeal arteries (Gray).

The mucous membrane of the tongue resembles other mucous membrane in essential points of structure, but contains papillæ peculiar to itself. The tongue is beset with numerous mucous follicles and glands. The larger papillæ are thickly set over the anterior two thirds or dorsum, and give to it its characteristic roughness. In carnivorous animals, especially those of the cat tribe, the papillæ attain a large size, and are developed into sharp recurved horny spines.

The papillæ of the tongue present several diversities of form, three principal varieties may be distinguished, viz., the circumvallate, fungiform, and conical and filiform. The latter are the most numerous and cover the anterior two-thirds of the dorsum. They are very small, more or less conical or filiform in shape, and arranged in lines corresponding in direction with the two rows of the circumvallate papillæ.

The fungiform papillæ are scattered chiefly over the sides and tip. They are easily recognised among other papillæ by their large size, rounded eminences and deep colour. Their name is derived from their being shaped like a puff ball fungus.

The circumvallate papillæ are of large size and vary from eight to twelve in number. They are situated at the back part of the dorsum, near its base, forming a row on each side which runs backwards towards the middle line like the two lines of the letter V inverted. They are circular elevations, and it is in the walls of these cells that the taste buds are situated. These taste buds are of an oval shape and consist of a number of closely packed cells called Gustatory cells which are spindle shaped, and have a large spherical nucleus about the middle of the cell. Both extremities of these cells are filamentous, the inner process is described as being continuous with the terminal fibril of the nerve, while the outer one projects as an extremely fine hair through the orifice of the taste goblet. (Gray).

The middle of the dorsum of the tongue is not endowed to any great degree with the sense of taste ; the tip and margins and especially the posterior third of the dorsum, that is, in the region of the taste buds, possess this faculty. The sense of taste is a compound sense, and rises with the advance of organisation, reaching its most perfect development in man.

This sense of gustation depends for its perfection not only on the nerves of taste, but also the sense of smell situated in the nose. Such articles of food as tea, coffee, and some wines, also freshly cooked meats, to a great extent are dependent on smell for the sensation called taste. For, if from mechanical obstruction or disease, the olfactory membrane is separated from the oral cavity during the act of deglutition, the peculiar flavour of the food is lost.

Taste may be classified into sweet, bitter, acid, and saline. Sweet is neutralized by acid as well as by bitter tastes. Acids and salines apparently affect nerves of tactile sense as well as those of taste proper.

The different sensations of taste seem to be located in different parts ot the tongue. That of sweet seems to be the most discernible in the front part of the tongue, acids by the side, while that of bitter is not distinguishable till the bitter elements reach the back of the tongue. The substance to be tasted must be dissolved as all articles having taste must be capable of solution. This is a striking contrast to the sense of smell. Very high or very low temperatures deaden the taste, and it is possible by chewing the leaves of a certain Indian plant (Gymnoma sylvestre) to do away with the power of tasting bitters and sweets, while the taste for salts and acids remains.

The sense of taste in sickness is sometimes lost, and at other times substances circulating in the blood distress the patient by their constant presence. In diabetes there is a continued sweetish taste.

Morphia, and in jaundice biliary products, cause bitter sensations. The delicacy of the taste is sufficient to discern one part of sulphuric acid in a thousandth part of water. The sense of taste may be improved by practice as in professional tea-tasters.

There has been considerable discussion as to whether there is more than one nerve of taste. The view generally held by physiologists is that the glosso-pharyngeal is the nerve of taste, and the lingual the nerve of tactile sensation. Nevertheless the lingual and chorda tympani do contain taste fibres which may be, however, ultimately derived from the glosso-pharyngeal by its communication with the fifth and chorda tympani plexus. The anterior part of the tongue is supplied by the lingual branch of fifth nerve, and the chord tympani, and the posterior third by the glosso-pharyngeal. Dr. Gowers says that the true nerve of taste is the fifth, and that the taste fibres in the glosso-pharyngeal come ultimately from the fifth. (Kirke). So much for taste.

In prenatal life as well as after birth, the tongue modifies the shape and contour of the jaws, and thus affects the arrangement of the teeth.

The size, shape, and colour of the tongue in health depends largely on the systemic tendency and temperament of the individual.

After birth it is first used with the aid of the lips as a prehensile organ to seize and hold in sucking the breast of the maternal fountain of life.

The tongue is the organ of speech, &c., and special organ of taste and touch, as well as it is of general sensibility. It is the only organ of the body having two special senses situated in it. Not only that, but I believe it is the only organ of the human body which is under voluntary control a few years after birth. There is a very popular tradition that one half of the human family lose that control a few years after birth. The tongue is the principal tuning organ of speech and song in the oral cavity.

The sense of taste, if not of touch, of the tongue are the only ones of special sense that are developed at birth. The eye cannot really see, nor the ear hear, nor the nose smell at birth. (C. R. Taylor).

In eating the tongue performs a very important office. It changes the food from one part of the mouth to another. It turns and mixes the food with the saliva. The intimate incorporation of this secretion with the food is called "Insalivation." It also assists in holding the food in position for mastication, and aids in separating and sorting ont unsuitable particles in the food by its sense of taste and touch.

When the food is properly masticated and mixed thoroughly with the saliva, it is transmitted in successive portions to the stomach by the act of deglutition or swallowing. This, for the purpose of description, may be divided into three acts. In the first, the particles of food collected as a bolus, are made to glide between the surface of the tongue and the palatal arch of the fauces ; in the second the morsel is carried through the pharynx, and in the third it reaches the stomach through the œsophagus. These three acts follow each other rapidly. The first act is voluntary, although it is usually performed unconsciously, the morsel of food when sufficiently masticated being pressed between the tongue and the palate, by the muscles of the former, in such a manner as to force it back to the entrance of the pharynx.

When the food has been brought between the anterior arches of the palate it is moved onwards by movement of the tongue backwards and by the muscles of the anterior arches contracting on it, and then behind it. This act is involuntary. (Kirke).

In swallowing liquids the two mylo-hyoid muscles form a diaphragm which pulls the root of the tongue upwards and backwards, the two hyoglossi act with these pulling the tongue backwards and downwards. The action of these four muscles resembles that of a force pump projecting the mass of fluid down into the œsophagus ; it reaches the cardiac orifice with great speed, and the pharyngeal and œsophageal muscles do not contract on it at all, but are inhibited during the passage of fluid through them. This is proved in cases of poisoning by such substances as oil of vitrol, the mouth and tongue are scarred and burnt, but the pharynx and œeophagus escape serious injury so rapidly does the fluid pass along them. There can be no swallowing without the tongue making the initiatory movement.

The tongue is capable of being attenuated or broadened, contracted or extended, can be thrown partially out of the mouth, or withdrawn to the back part of the mouth into the upper part of the throat. It is the most flexible of any of the different parts of the body, and can be moved with the greatest rapidity. It has considerable muscular strength. Usually it is under the control of the owner, but, as every dentist knows, there are times when the patient seems to be unable to put it in any particular part of the mouth when requested to do so. At other times the tongue seems to move involuntarily to all parts but the one desired, and frequently it requires considerable force to restrain its encroachments.

If the tongue is wounded or abraded by the rough edges of a badly decayed or broken tooth or any denticulated substance in the mouth, it will involuntarily seek to retouch the jagged surface till it becomes impossible for the person suffering from the excoriation to keep the tongue from rewounding itself.

The sense of touch is often called the mother of all senses, and in no part of the human body is it so exquisitely developed as it is in the tongue. I think most people will have noticed that this sense of touch is so keen and highly developed in the tongue that it has the power of magnifying this tactile sensation to a remarkable degree. Nothing is smooth till the tongue says it is.

Dr. F. L. Gerald in "Herald of Health," says "The tongue is of great diagnostic valuc, and by close observation it will give valuable aid in determining the character of disease." The tongue tells us of the condition of the blood, the condition of the nervous system, and the functions of nutrition and excretion. We find the expression of disease in its form, its condition of dryness or moisture, its coating and colour. The dental practitioners should be able to read what the tongue has to tell, for often patients need the physician rather than the services of the dentist, and it is the duty of the dentist to so direct his patient.

There are but few morbid conditions of the tongue in infancy and early childhood.

At birth the tongue is sometimes found to be divided into two parts through the median line, and even three lobed tongues have been recorded. A few cases are recorded where the tongue was entirely absent at birth, and strange as it may seem the power of speech was acquired and the sense of taste was present, and in cases of total removal of the tongue by surgical ablation, both the sense of gustation and the power of speech have been retained. (C. R. Taylor).

Any or all the tissues of the tongue, mucous membrane, muscles, glands, ducts, bloodvessels, lymphatics, or nerves, are subject to morbid changes. And so we find the tongue the seat of numerous diseases ranging from the simple pimple to that most dangerous and worst of all complaints—cancer. One of the diseases most frequently met with in a dental practice is paralysis caused by exposed pulps and inflammatory conditions in consequence of dead pulps of teeth, the tongue suffering from nervous reflex action. Paralysis is easily told if the muscles of the face do not indicate it, by asking the patient to extend the tongue. In paralysis the tongue will be drawn to one side of the median line opposite to the side affected.

That the tongue should be a favourite seat for cancer can hardly be wondered at, indeed, it is only surprising that it is not more frequently attacked. For there is no organ in the body which is subjected to such rough usage and from its structure and surroundings one can understand how suitable a ground it must present for the growth of this disease. Has not the tongue its natural enemies? Carious and broken teeth whose rough edges are constantly wounding and irritating it. The large quantity of tartar which so frequently collects round the teeth, is a constant source of irritation to the tongue. Then again, amongst outside influences, not by any means the least source of irritation is caused by badly fitting dentures or plates of inferior material. Smoking is another exciting cause of carcinoma, more particularly the practice of smoking the short clay pipe.

The habit of drinking ardent spirits especially when taken *neat*, is another exciting cause. (Jessett).

Sometimes a dentist is consulted on account of a small ulcerated spot on the tongue caused by the rough edge of a decaying tooth. How important for the patient that the true character of the ulcer should be recognised, and yet sometimes cases have presented themselves where the dentist has been satisfied to extract the offending tooth and taken no heed of the ulcer.

The patient leaves in the fond hope that now the tooth has been removed the ulcer will speedily heal. Perhaps after wasting weeks the patient finds that instead of getting better it is getting worse, then consults a surgeon who dashes all hopes to the wind and informs the patient that he is the subject of cancer of the tongue, and perhaps that half or the whole of the organ must be removed.

Children as well as grown persons suffer very much from denuded spots or patches on the tongue caused by a dyspeptic condition of the alimentary system.

The tongue is often badly injured in the extracting of teeth by careless operators grasping the side of the tongue with the forceps, this is especially liable to take place in hasty extracting under nitrous oxide.

Unguarded operations with the dental engine with discs, stones, or burs, may wound the tongue painfully and seriously.

Frequently small children when playing fall and strike their chins, with the tongue between the teeth, and nearly sever that organ.

From injury and disease the tongue sometimes becomes attached to the cheek or floor of the mouth, causing interference and difficulty in speech, mastication, and deglutition.

When the frænum of the tongue is too broad or is attached too near the end of the tongue, so that it cannot be extended beyond the edges of the incisor teeth, the person is said to be tongue-tied. This malformation not only interferes with the nursing of the child, but in later life prevents perfect articulation in speech.

Occasionally there is an absence of the frænum too completely. When such is the case there is prolapsus of the tongue, and the life of the patient is constantly put in jeopardy by the tongue falling back in the fauces and causing death from suffocation. (Taylor).

Macroglossia or hypertrophy of the tongue is a disease of that organ which occurs in early life as well as in adult age. It is supposed to be caused from enlarged blood vessels, and obstructed lymphatics. As the tumour increases the tongue is forced forward, and by gravitation downwards till in its worst stages it separates the lower jaw at the symphysis, and also forces the anterior teeth to assume a horizontal position. It is a most distressing condition. The irritation produced causes a constant flow of saliva from the mouth, leaving the upper surface of the tongue dry, cracked and sore. While speech is not so much impeded, the patient finds it difficult to take food in the mouth, and also either to masticate or swallow the same. (Taylor).

The tongue plays no small part in correcting irregularities of the teeth in the lower jaw by the constant pressure outwards. It also assists in producing irregularities and malpositions of the worst types, and the most difficult to correct. Such types are produced from the improper habits of tongue and thumb sucking. Great watchfulness and care is required in all acute inflammatory conditions of the tongue on account of the danger of asphyxia, from sudden and extensive swelling of the tongue. In syncope or suffocation from whatever causes, the tongue should always have the closest attention. For the relaxed condition of that organ at such times permits it to so lodge in the throat as to prevent easy excess of air in the lungs.

RECIPROCITY IN DENTAL PRACTICE.—The United States Commissioner of Education at Washington, D.C., is asking for information in regard to the standard of qualifications required of practitioners of dentistry in that country. He desires the facts in order to answer intelligently communications received from several European countries, where efforts are being made on behalf of American dentists who have gone to Europe to practise their profession, and who are debarred from so doing because of the laws now in force there.

DENTISTS FOR THE AMERICAN ARMY.—A Bill has been introduced into Congress to establish a branch of the Medical Department to be known as the Dental Corps, providing for the appointment of a Brigade Dentist for each Brigade, with the rank of Major, and one for each regiment with the rank of Captain. It has been referred to the Committee on Military Affairs.

TREATMENT OF SLOUGHING GUMS DUE TO FORMALDEHYDE.—Should you be so unfortunate as to get formaldehyde on the gums, and the patient returns with a slough, first cleanse with 3 per cent. pyrozone, remove any pain by local application of campho-phenique, dry surface of slough and coat several times with the compound tincture of benzoin. Should the patient complain of a smarting sensation, either while applying or after removal of the rubber-dam, try and locate the spot on the gum that has been injured by the formaldehyde. If fortunate enough to discover the spot apply a little weak water of ammonia and follow with an application of 10 per cent. solution of trichloracetic acid, which will inhibit the further entrance of the formaldehyde.—*Dental Gazette.*

British Journal of Dental Science.

LONDON, OCTOBER 1, 1898.

## FRESH AIR.

The dangers of lead and phosphorus poisoning, and the risk of disease in various employments have recently been brought prominently before the public mind. But it is a matter probably overlooked that all occupations have their drawbacks, and unless the proper precautions are taken bad results are almost certain. And dentists, too, do not always pay sufficient attention to the surroundings in which they work. An operator in full work is placed at a disadvantage from a health point of view. He may feel the need for rest and recreation, but when his day's work is done, the fatigue resulting from standing at the chairside in a more or less strained position, makes him disinclined for active exertion. The use of a stool when it can be employed only brings a certain amount of relief and does not remove him far from his patient's face. The respiratory exhalations from the patient constitute a real danger to the dentist, and the latter, although avoiding, as far as may be, breathing directly upon the patient at all events adds his share to the vitiation of the atmosphere of the room. Indeed, we believe, that many dentists unconsciously "hold the breath," and turn aside from time to time to respire with the hope of saving the patient and themselves. But this is an unnatural method of breathing, and dangerous because of the retained products. If an assistant is also at the chair-side, the danger from a respiratory point of view is of course increased, and occasionally one or more friends of the patient are also present.

It becomes evident that the proper ventilation of the room is a matter worth serious consideration. During the recent hot weather those who have been obliged to work have no doubt had windows wide open, but now with cooler weather, and the approaching winter, there will come the tendency to keep doors and windows closely shut. To those who feel inclined to treat this matter of hygiene lightly we would recommend the perusal of a very interesting and common-sense paper contributed to *The Lancet* this month by Mr. John Hartley, He has made a close study of the effects of re-breathed air, and comes to the conclusion that apart from such air being highly charged with micro-organisms, it is in itself poisonous. He believes the poison of re-breathed air tends to cause contraction of arteries and dilation of venules, thus diminishing arterial supply which with a sluggish venous overflow must hamper metabolism and render tissue change slow and imperfect. Faintness in crowded buildings or even crowded streets would seem to show the probability that expired air contains a poison having a powerful effect on the cardio-inhibitory function of the vagus. Mr. Hartley cannot resist the impression that an overdose of waste products, whether of one's own or other people's, must generally interfere with the metabolism of nerve tissue, and he speculates whether constant exposure to rebreathed air may be one of the causes of the unexplained neuroses and non-specific nerve degenerations. Professor Fraser speaking recently upon the toxic origin of disease, suggested that the structural changes found in many diseases may after all be mere manifestations associated with other effects, of a cause which would thus assume the importance of the essence of the disease, and that this essence is a toxic substance. "This idea is rapidly becoming the predominent doctrine of the present day conception of disease, and as investigation proceeds it is almost daily receiving support from new facts."

Let us at all events see to the ventilation of our workshops and operating rooms. We cannot perhaps raise our ceilings and make our surgeries more lofty, but much may be done by arranging for inlets and outlets, and by studying the best modes of warming and artificially lighting the rooms where so much time is spent.

LADY DENTISTS IN RUSSIA.—Russia seems to be the country for women's enterprise, there being 196 lady dentists out of less than 2,000 dentists. Throughout the Russian Empire the proportion of ladies is enormous, and the most astonishing fact is, that in Bogorodsk, there are only two dentists, both ladies. In Tiflis, there are nine ladies out of twenty dentists, and of three practising dentistry who possess the Medical qualification, M.D., two are ladies. The following is a list of lady dentists in the principal towns:—St. Petersburg, 17; Odessa, 15; Keiv, 10; Warszawa, 13; Wilna, 5; Riga, 4; Tiflis, 9; Moscow only 4.

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A FATAL TOOTH-ACHE MIXTURE.—The hot weather probably had much to do with making a little boy at Sunderland very thirsty. He was only two years old. He had been nearly drowned whilst trying to drink from a soft-water barrel. He had also drunk paraffin from a lamp, and his mother had seen him trying to get soda water from a syphon. Finally during the night he took from a dressing table a mixture of laudanum and oil of cloves, provided for somebody's toothache, and swallowed sufficient to cause an inquest.

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A METHOD OF MAKING CASTS.—Dr. George Peters of Toronto University, recently gave a demonstration at Edinburgh, of what he termed a new and original method of making casts. The process consists in spraying melted paraffin over the whole surface, cooling it with ice-cold water. Where it is necessary to remove the mould in sections, silk threads are placed upon the surface in suitable positions. When the layer of paraffin has attained a thickness of from three-eighths to half an inch, the mould is strengthened by being covered with a liberal coating of plaster of Paris cream. At the proper moment of setting, the threads are rapidly, but very carefully cut out. A special "ejector" with a hot water jacket is used for the paraffin, and a similar one without a jacket for the cold water. An air pump driven by a motor to fill a cylinder completes the apparatus.

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TEETH LENT.—We have read that the East Grinstead Guardians ordered a set of artificial teeth for an inmate on the understanding that the equipment should be on loan and when no longer needed should be "returned into store." "When no longer needed" is good, distinctly good. After the fortunate one dies or has erupted the proverbial third set of teeth, the equipment should find a resting place under a glass case in the store. Perhaps, however, the Guardians meant that the inmate should not take them outside, lend them to someone else, and, returning toothless, demand a fresh equipment. Here we have a picture of the inmate torn with conflicting doubts. To stay in the House and chew, or to get work outside and mumble the bread of liberty. The cost, we see, is to be £3 10s., not a large sum, but if edentulous persons were allowed to leave with dentures there would probably be an increasing stream of entries relying upon the same treatment.

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SCHOOL CHILDREN'S TEETH.—At a meeting of the King's Norton D. C. there was at least one member who had heard or read something about the necessity for taking care of the children's teeth. General Philips advised the Cottage Homes Committee to obtain permission to have the children examined every six months by a dentist, and pointed out that if the boys' teeth decayed the Board would be unable to get them into the Navy. Of course an inspection is only a means to the end, for unless these particular children are unlike the ten thousand children already reported upon in this country, there will not be more than fifteen per cent. of them who do not require treatment. It seems that something has already been done in this way at the Homes in question, for Mr. Twentyman reported that one boy had been attended to by a dentist whose account had come to seventeen shillings.

False Teeth for Paupers.—At the East Grinstead Board of Guardians, the Medical Officer (Mr. T. J. P. Hartigan) recently made a novel application in person. It was that the Guardians should purchase a complete set of false teeth for a female inmate. The inmate, Mr. Hartigan added, had not a tooth in her head, and being unable to masticate her food, suffers much from indigestion.—Mr. Stenning, one of the Guardians, suggested that the Board should grant the application, but that the teeth should remain the property of the Guardians.—Everyone laughed at the suggestion at first, but Mr. Stenning said it was a serious matter, because if they once supplied teeth the Board might be receiving applications from all over the place and people would be coming into the House for a short time on purpose for a set of teeth.—In answer to a Guardian, Mr. Hartigan mentioned that he made the present application because it was necessary on medical grounds.—The Board decided to grant the application, that the cost should not exceed £3 10s., and that the teeth should be lent to the inmate.

Root-filling Material.—Mr. Leonard uses as a root-filling a paste made of equal parts of iodoform and oxide of zinc mixed with oil of cinnamon, a preparation that seems peculiarly suited for immediate root-filling after the extraction of live pulps. The cinnamon deodorizes the iodoform almost completely, making its use unobjectionable in the mouth. This paste can be used to advantage for filling even the smallest root-canals, as it can be easily introduced on a smooth broach and pumped into the canals. Then by pressing the excess that should be left at the mouth of the canal firmly with a pellet of cotton held in the pliers the excess of the oil of cinnamon can be removed, and at the same time the filling in the root firmly packed. This makes a filling that is permanently antiseptic, and posseses all the advantages claimed for any root-filling. It seems entirely non-irritant when placed in contact with the soft tissue, making a satisfactory nerve-capping, and in cases where only a portion of the live pulp has been removed and the operation has been aseptic, if this dressing be used and placed directly in contact with the remaining portion and the cavity filled, Mr. Leonard believes the lesion will heal by first intention, and the vitality be permanently preserved.

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Broach Holder.—An excellent broach holder may be made by affixing a ball of sealing wax to a shortened Donaldson broach when used for treating root canals far back in the mouth. It gives a good grip to finger and thumb, and is easy of rotation.

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Foreign Bodies in the Stomach.—Mr. Paul Swain relates several curious cases of people swallowing the most uncomfortable and indigestible things. One case was that of a young woman, aged 20 years, from whose stomach he removed by gastrotomy a mass of hair weighing 5 lb. 3 oz. This was the third case recorded, the mass of hair removed exceeding in weight the other two, which respectively weighed the one 2 lbs. and the other 10 oz. The curious fact about the condition of the patient antecedent to the operation was that during the time she was in hospital she exhibited no symptoms of stomach disorder and was able to eat and digest the ordinary hospital diet. The incision made in the stomach was 6 in. in length, which was afterwards closed with twenty-six Lembert's sutures of fine silk. She went to America, married, and has a child. It is very generally believed that most bodies which can pass into the stomach by the cardiac orifice will pass out again through the pylorus. Those which are retained are generally long bodies, such as knives, forks, etc. But it is hardly to be expected that the hoop of a barrel 15 in. long would pass out of the stomach. The only wonder is, like the fly in amber, how it got there. Such a case is reported by Fournier. Then again, a number of small bodies may become agglutinated together and remain in the stomach. Mr. Mayo Robson removed from the stomach of a girl, aged twelve years, the following digestible items: 42 cast iron garden nails, one and three-eighths of an inch long; 93 brass and tin tacks from ½ to 1 inch long; 12 large nails, some brass-headed; 3 collar studs; 1 safety pin; and 1 sewing needle.

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GIVING ANÆSTHETICS FOR UNQUALIFIED MEN.—The lay press on the whole approves of the attitude of the General Medical Council in this matter. The *Globe*, however, seems to be in two minds about it, for in one column we read—"The medical authorities have resolved to prosecute even more stringently than before their campaign against the unqualified medical man. The General Medical Council has been appealed to as to whether it would be an offence for a qualified medical man to assist in the administration of anæsthetics by an unqualified dental practitioner. The reply allows no doubt whatever upon the subject. The registrar of the council declared that not only was it an offence, but that the Dental Committee would recommend the council to closely investigate every case of the kind reported to it. This means that administration under such circumstances will be declared to be infamous conduct—the strongest step ever taken in this direction." In another column, however, the paper seems to deprecate such action, as it remarks, "We are exceedingly glad to see that the medical authorities are bestirring themselves against the unqualified man. Nevertheless, it seems rather a strong order to declare that a doctor who administers an anæsthetic on behalf of an unqualified dentist is guilty of "infamous conduct." It seems to us that the General Medical Council has sufficient work before it in discouraging the obvious quack instead of issuing such a tremendous fulmination against such a very small sin." It seems to us that like as the receiver is as bad as the thief, so is the abettor of an unqualified dentist as bad as the unqualified practitioner.

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Shaping of Cavities.—In the full abstract we publish of Dr. C. N. Johnson's paper will be found the arguments in favour of angles and flat bases being adopted instead of rounded surfaces and curved bases with undercuts. It will be seen that the adoption of this method does not necessarily prevent an æsthetic external configuration of the completed filling. Much of the other advice too, is well worth recalling to mind. Whilst not allowing patients to dictate how we shall operate, "we should never jeopardize the nervous system of our patient in order to carry out some heroic theory." It is just here that the judgment and resource of the skilful operator can be shown to advantage.

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A Wandering Foreign Body.—At the annual meeting of the Missouri State Dental Association, Dr. Eisloeffel narrated a peculiar case. The patient, a man, had a piece of steel thrown at his head, lodging there and remaining for six years. At the time of the accident a surgeon tried to remove the steel, but was unable to find it. The man suffered great pain and inconvenience when masticating and thought that a tooth was giving him trouble. The teeth were examined and all found to be in good condition. He then pointed to his throat and said there was where the trouble was. His throat was so swollen that he could not swallow, and he made the remark that he thought his jaw-bone was broken. Dr. Eisloeffel, thinking it was a piece of bone, asked if he should remove it, or if he would prefer to go to a surgeon. He said, "Go ahead and remove it," which was done by making an incision and taking it out with forceps. On account of its peculiar shape, very similar to a Brazil nut, the forceps would not hold it well, but a second trial successfully brought it out, and the weight was two ounces. When the patient found that the piece of steel had been removed he jumped out of the chair for joy.

# Abstracts of British & Foreign Journals.

## A FEW CONSIDERATIONS IN FILLING TEETH.

By C. N. Johnson, L.D.S., D.D.S., Chicago, Ill.

In the consideration of the present subject the principal aim will be to direct attention to some of the causes of failure in filling teeth, and to offer a few suggestions relative to possible improvement in methods of procedure. In doing this no originality of treatment is claimed. The thought of the profession in recent years has been too active along these lines for any one individual to claim much in the way of originality. But some of the recent advances in practice would seem to need systematizing, and most of them require emphasizing. This is the present aim.

The plan is to treat the various topics as nearly as practicable in the order of their performance in the mouth, to give in detail the consecutive steps of the operation, and to say something of the technique of the subject. This latter is considered to be of very great importance, but it is a matter quite difficult of intelligent treatment. The proper selection and use of instruments has much to do with the effectiveness of our work and the comfort of our patients, but the personal equation of each individual operator enters so prominently into the question that it is difficult to lay down rules for all to follow. Then again there is such a variation in patients with regard to their toleration of different instruments that it is not always judicious to use the same instruments in the same way on all patients. We must study carefully this susceptibility of our patients, and in all cases where it will not interfere with the perfection of our work we should respect their preference. Some individuals will submit to the use of hand instruments, such as excavators and chisels, with better grace than they will do to the engine, while very many prefer the smooth, light touch of a rapidly-revolving bur to the grating, rasping sensation of an excavator. In the routine practice of operating there are some stages of the work where the engine is clearly indicated, and some where hand instruments must be used, but the predominance of the use of either may in certain instances be determined by the patient. Not that we should in any sense allow patients to dictate to us how we shall operate, but that we may often profitably study their varying susceptibilities to the impressions made upon them by different instruments and govern our manipulation somewhat thereby.

Much in the way of prejudice may be overcome by the invariable use of keen, sharp intruments and a dexterous, careful method of manipulation. This applies as well to the engine as to hand instruments. The dentist should cultivate the utmost delicacy of touch, so as to impress upon his patient at all times the fact that he is giving the least possible discomfort commensurate with effective work.

The system of technique here suggested is not presented as being applicable to all operators or all patients. It is not even claimed that it is the best system, but merely that it is an attempt to formulate a definite and consecutive method of procedure in the performance of many of our operations, which in the past seem for the most part to have been performed without method and without system.

*Preparation of Cavities.—Approximal cavities in Incisors and Cuspids:—Simple cavities not involving the incisal angle.*—When decay occurs on the approximal surfaces of any of the anterior teeth, we are confronted with problems peculiar to the locality. The first consideration, as in every other class of cavities, is of course the preservation of the teeth, but in these exposed positions we must not entirely ignore æsthetic and artistic effects if we would do the highest class of service. Were it possible for us to save these teeth by filling without advertising the fact to the world, it would be our manifest duty to do so ; but unfortunately this cannot always be done. It may also be stated that in the attempt to hide our work by confining our fillings to narrow areas we often jeopardise the teeth and lessen the confidence of the public in the permanence of dental operations through recurrence of decay and consequent undermining of the tooth structure.

Observant operators have noticed that there are certain points around ordinary approximal fillings where decay is most likely to recur, This relates in anterior teeth to the cervico-labial, cervico-lingual, and the incisal angles. The reason for this is found in the fact that these regions are not kept clean by the friction of food in mastication, or by the lips or tongue in their various movements. If the anatomical relation of the approximal surfaces of these teeth be studied, it will be seen that a considerable area in the vicinity of the contact point is not self-cleansing. This is what admits of caries in this region in the first instance. If in the preparation of a cavity we limit the area to a small round outline, we have left unprotected, at the points indicated, more or less of the surface of enamel. With the same conditions present and the same influences at work which originally induced decay, there is little to prevent a recurrence. The remedy lies in so extending the outlines of the cavity that the margins are carried to a point where they will be kept clean. This process has been termed "extension for prevention" by Dr. G. V. Black, and its observance must be insisted upon where the most permanent work is required.

Another point of most frequent failure around these fillings is along the lingual margin. This is due to the fact that the lingual wall is often left exceedingly thin, and the enamel is crushed under the stress of mastication. The force of the lower incisors comes directly against this surface, and any unprotected enamel is likely to be broken down. In every instance where possible the margin should be so extended as to leave the enamel well supported by dentine, and wherever this cannot be done the enamel should be freely bevelled and the gold built over it in such a manner as to protect it. Enamel protected in this way with care and skill will remain intact in ordinary positions, and yet this does not alter the general rule that enamel is safest when supported by dentine.

This question of extension is a matter calling for the most careful consideration. It is confidently believed to be a solution of the problem connected with a very frequent form of failure in this class of cases, and yet it must not be employed indiscriminately. There are many cases where it would be manifestly impossible and injudicious to cut the cavity to the extent indicated. Patients apply to us for these fillings occasionally in such a nervous condition that any extra cutting beyond the present necessities of the case must be avoided. We should never jeopardise the nervous system of our patient in order to carry out some heroic theory. Then, again, there are persons in whose mouths the tendency to caries in so slight that extension for prevention would appear to be an unnecessary extreme measure. In some of these cases where there is limited decay, small fillings may prove serviceable for years. The age of the patient also has an important bearing on the question. Whenever we find the approximal surfaces breaking down rapidly under decay early in life, we may infer that the process of caries is to be active in that mouth, and we must employ the most strenuous means to control it. Extension for prevention is here indicated to its fullest legitimate extent. But in a patient well toward maturity with an occasional cavity developing, we may often safely stop short of the most extreme cutting. Then æsthetic reasons play an important part in the anterior teeth. If we can hide our fillings from view we should do so, and many of our patients are willing to take the chances of a recurrence of decay rather than have large fillings made in the first instance. A distinct understanding should be had with patients upon these points, so that they may enter intelligently into the merits of the different methods. We should be sufficiently honest with them to proceed on the theory that wherever these small hidden fillings are inserted the work must be considered more or less temporary, and must be kept under constant surveillance by the dentist.

In brief, the operator's attitude toward the practice of extension should be to aim always at the most ideal and permanent form for his cavities, and in every instance where he deviates from this it must be only on account of some well-defined reason for doing so.

There is one feature connected with the appearance of fillings in the anterior teeth that must not be overlooked. As has been said, it is sometimes well to keep fillings unexposed to view if possible, but whenever it becomes necessary for a filling to show at all it should be extended labially, so as to show distinctly. The reason for this is that where gold is placed between teeth in such a way that it is in the shadow, the appearance a few feet distant from the patient is that of a black mass simulating decay, while if the filling is carried out sufficiently to allow the rays of light to reflect upon it the bright yellow tinge of gold is immediately perceptible. There should therefore be very little compromise between a filling kept entirely out of sight, and a good, bold showing of the gold from the labial aspect.

*Separating Teeth.*—The first requirement in operating on these cavities is to have sufficient space between the teeth for perfect access. This must be obtained in some instances by wedging previous to the operation, in others spaces may be gained while operating by the use of a separator. In cases where the teeth have fallen together to any appreciable extent as the result of deep approximal decay, or where the teeth overlap in a slight irregularity, the separator will ordinarily not gain sufficient space for a proper contour of the filling. Neither can we gain access to do perfect work on small hidden cavities (in those cases where it may be deemed advisable to fill in that manner) short of extensive separation. Where the labial or lingual wall is well cut away, the access is simplified.

The methods employed for gradual separation to operating may be varied according to the requirements of the case. Rubber has been used for this purpose quite extensively in the past, but it is only in the rarest cases where rubber is properly indicated. The difficulty with this material lies in the fact that it cannot easily be maintained in position. The sloping surfaces of the teeth facilitate its tendency to slide away from the contact points and insinuate itself into the interproximal space to the serious injury of the gum tissue. Rubber should never be used even in the extremest cases without previously protecting the gum by packing cotton, gutta-percha, or cement against the cervical wall of the cavity, allowing it to extend across the interproximal space to prevent the movement of the rubber rootwise.

The materials best adapted for separating are cotton, gutta-percha, and waxed linen tape. Cotton should be packed firmly between the teeth while dry, and if there is difficulty in maintaining it in position it can be secured by passing a ligature between the teeth in the interproximal space before placing the cotton, and then bringing the ends down over it toward the incisal surfaces of the teeth and tying tightly around the cotton. This holds it securely in place and proves a very effective means of separating teeth.

Gutta percha may be employed by first adjusting the separator, forcing the teeth slightly apart, and packing the gutta-percha into the cavity and firmly between the teeth. The separator is then removed and the gutta-percha allowed to remain for several days. This will usually result in good space without soreness.

Waxed linen tape of a suitable width for the case in hand may profitably be employed in those cases where there has been little or no breaking down of the approximal surfaces, and where it would be difficult to retain cotton or gutta-percha. By either of these methods the pressure is so gradual that space is gained without the distressing irritation which usually accompanies the use of rubber.

In favourable instances, or in emergency cases, space may be gained at the time of the operation by the use of the separator. Wherever the separator is indicated it should be used in the following way: Care must be exercised in its adjustment not to allow it to impinge on the gum or unnecessarily wound the soft tissues. It should not be tightened to the limit at once, but as the operation progresses, it can be gradually tightened at intervals without appreciable discomfort. By the time the cavity is prepared, sufficient space will usually have been gained to admit of the insertion and proper contouring of the filling, and then a slightly additional space obtained during this part of the operation will afford opportunity for polishing. When the filling is finished, the greatest caution should be observed in removing the separator. If it is loosened suddenly after being tightened to the extent usually necessary, it will result in most excruciating pain to the patient, the discomfort from this source ordinarily being greater than from the process of separating. It should be loosened very gently and slowly till the contact between the filling and the tooth next in line is sufficient to hold the teeth from further movement.

In manipulating the separator the greatest delicacy of touch should at all times be exercised. It is a dangerous and cruel appliance in the hands of the thoughtless and careless. The operator should invariably employ one hand to steady the bows while the other tightens the screws, to prevent tilting or shifting the separator. Any rocking or twisting of the appliance will result in unnecessary pain, and undue injury to the soft parts. Another serious limitation to the separator lies in the danger to enamel margins when the jaws impinge close to the cavity. The enamel may thereby be checked in such a way as to jeopardize the usefulness of the filling without the operator's observation of the fact at the time. Cases for the separator should be selected with care and judgment, and due consideration for the patient must invariably accompany its use. With these precautions, it is really a humane appliance and is capable of a large range of usefulness. It is not only indicated for gaining space between teeth, but may frequently be used, where space has already been obtained, for the purpose of holding the teeth firm during the operation. This avoids in large measure any soreness from malletting, and also prevents the teeth from gradually dropping together while the filling is being inserted.

Wooden wedges may also be used occasionally for this purpose, but the difficulty with wooden wedges lies in the fact that they are usually injurious to the gum tissue in the interproximal space, and their entire wedging force must be exerted immediately instead of gradually. Whenever a wooden wedge is used to hold the teeth firm during an operation it should be made as narrow as possible, and the rubber-dam should be stretched well labially before the wedge is inserted, to overcome the tendency which the dam otherwise would have of dragging the wedge out of place.

After frail enamel walls have been broken down and the margins extended to the desired outline, all decay should be removed and the cavity given such form that the filling will be retained securely in place.

*The cervical wall.*—This wall should be extended rootwise sufficiently to carry the margin of the filling well under the gum. The reason for this extension is the well-known fact that wherever we have the cervical portion of a perfectly inserted filling covered by healthy gum tissue, we will never have recurrence of decay at that point.

The cervical margin of approximal fillings has often been alluded to as the "vulnerable point," even when fillings were well inserted, but this is hardly in strict accordance with facts. In reality decay seldom recurs along the cervical margin proper. It usually begins at the cervico-labial and cervico-lingual angles. From here it may extend and involve the entire cervical margin, but the initial point of failure is usually at the angles. This is because there is a lodgment place in these positions for deleterious matter to form undisturbed by friction from the tongue or lips, and unprotected by gum tissue. In this small sheltered harbour the micro-organisms of caries create their films and attack the enamel. No tooth may be considered safe from recurrence of decay around approximal fillings unless the cervical wall has been carried sufficiently rootwise to bring that portion of the filling under the gum, and the cervico-labial and cervico-lingual angles have been extended to a point where these margins of the filling are kept clean by friction.

This form of extension results in the cervical wall being flat labio-lingually, and this is believed to be desirable for other reasons than that of prevention. A filling is more easily built upon a flat base than upon a curved base, and is more secure from dislodgment when completed. The prevailing custom of forming the cervical wall on a curve labio-lingually is accountable for the fact that many operators find their fillings rocking when partly inserted, and it has also led to the necessity of drilling pits more or less deep (and more or less disastrous) in the cervical portion of the cavity. To subserve the best ends in anchorage the cervical wall should also be made flat mesio-distally, with a slight incline rootwise as the cervical wall approaches the axial wall. In some instances this incline may take the form of a shallow groove in the dentine extending from the cervico-labial to the cervico-lingual angles of the cavity, and carried somewhat into the lingual wall at this point to facilitate the starting of the filling. It should not be carried to any extent into the labial wall, on account of the difficulty of adapting gold into an inaccessible undercut such as this would be.

*The lingual wall.*—As has already been intimated, this wall should be freely cut away if frail. The temptation to leave it for the purpose of having something to build the gold against in the insertion of the filling has proved the stumbling block of many an operator. If sufficiently supported by dentine it need not be extended farther than is necessary for prevention, but in some instances it must be cut away nearly on a line with the axial wall.

Especially is this true in those cases where for æsthetic reasons it is considered desirable to leave the labial wall standing and insert the filling mostly from the lingual aspect. The difficulty of doing a perfect and permanent operation in this way renders these cases rare, and limits them sharply to cavities having a strong, thick labial wall.

When the lingual wall is cut away freely, the only attempt at retention along this wall should be as it approaches the cervico-axial angle and the incisal angle. Here a right angle may be made with the axial wall, or in the cervical extremity of the lingual wall the groove previously mentioned in the cervical wall may be diverted at right angles into the cervical third of the lingual wall. This not only aids in retention, but provides a cul-de-sac into which may readily be secured the first pieces of gold. Deep grooving should generally be avoided in these cavities on account of the uncertainty of gaining perfect adaptation and density of the gold in the bottom of grooves, and also because of the consequent weak walls to the cavity; but in the cervico-lingual region these objections are not strictly operative. Direct access may be gained with a plugger, and the bulk of tooth-tissue covering the pulp at this point admits of judicious grooving without creating weak walls. But in no instance, even where it is deemed advisable to leave the lingual wall standing, should the groove be extended throughout the length of the wall. The most that should be done in the middle third of the wall is to make more or less of an angle between that and the axial wall.

*The labial wall.*—The same general rules apply to the formation of this wall that have just been outlined for the lingual wall, except that grooving is contraindicated in any portion of its length. In cases where possible an angle may be formed with the axial wall to increase the security of anchorage, and especially should this be done in the cervical and incisal thirds.

*The incisal angle.*—This should be formed at right angles with the axial wall. It should never be deeply grooved, nor should a pit be drilled at this point, as is frequently done. To assist in retention of the filling it may be slightly inclined toward the incisal edge of the tooth as it approaches the axial wall.

*The axial wall.*—The form of the other walls practically determines the shape of this wall. It should be as nearly as possible at right angles with the others, leaving in all cases as much dentine covering the pulp as is consistent with strength of the filling and a thorough removal of all decay.

*The enamel margins.*—The final step in the preparation of the cavity is the treatment of the margins. The enamel should be so bevelled that the peripheral ends of the rod are cut off and the dentinal ends covered with gold when the filling is inserted. This calls to mind the necessity for introducing two terms to properly designate enamel margins. In reality there are two margins to enamel, and in cavities such as we are considering a clear distinction between the two is important. There is the enamel margin at the periphery of the tooth, and the enamel margin next to the dentine. For want of better terms these may be designated the *peripheral enamel margin* and the *dentinal enamel margin.*

If in all cases the enamel could be left well supported for considerable depth by dentine, the distinction in terms would not seem so important, but this is not always possible; and where such is the case the treatment of these two margins is dissimilar. The peripheral margin should be given a distinct bevel, while the dentinal margin should be slightly rounded.

The necessity for bevelling enamel relates to the peculiarity of its structure. It is composed of rods standing with their ends on the dentine and radiating out towards the periphery of the tooth in a more or less regular manner. The enamel when supported by dentine and with no break in the continuity of its structure, will sustain great stress without fracture, but when undermined by decay it is easily broken down. If, then, the peripheral ends of the rods are left standing around a filling while the dentine is gone, and possibly the dental ends of the rods dissolved out by caries or burred away in the preparation of the cavity, it is readily seen that the short peripheral rods must sooner or later drop out, even if they escape crushing in the insertion of the gold. This admits of a leak around the filling. To make perfect margins the enamel should be so bevelled that there are no short rods at the periphery. But this bevel must not be too acute, nor must the peripheral margin be rounded. Either of these conditions would result in the filling-material assuming too attenuated a form at the edges, which would admit an element of weakness to the filling. In every instance where the dentinal enamel margin is at all prominent it should be slightly rounded, as already indicated, to facilitate the perfect adaptation of the gold against it.

The marginal outlines of these cavities should represent symmetrical and graceful curves that will not offend the eye of the artist. In the formation of the walls of the cavity, angles have been recommended at various points for the firm retention of the filling, but angles are never permissible along the margins for æsthetic reasons. As the cervical margin joins the labial or lingual margin it should not be at a sharp angle, but on a curve. This curve may in some instances be rather short, but it must invariably be a symmetrical and definite curve. The outlines along the labial and lingual walls should be true and clearly cut to present the most artistic appearance. The dentist should aim not only to do serviceable operations, but to do serviceable ones as well.

*Technique.*—The first step in the operation is to break down unsupported enamel margins. This may best be done with suitably formed chisels, made sharp. In some instances the thin overhanging labial wall may be cleared away to advantage with a short, strong hatchet excavator. The blade must not be long enough to penetrate into the cavity sufficiently to expose the pulp or impinge on sensitive dentine as the enamel is broken in. Care should be exercised especially in the early stages of the operation not to shock the patient. A false movement at this time will do much to unnerve the average individual. If it is found necessary to give pain in an operation, it is best, if possible, to defer that particular part of the work till the patient has been some minutes in the chair. It will ordinarily then be better tolerated.

After weak walls are broken down the cavity should be extended to its proper outlines. This can usually be done rapidly and effectively with sharp burs, either round or oval as the case demands. In the use of burs for this purpose—or in fact for any purpose—due regard must be exercised for maintaining the bur precisely at the angle and in the position required. No operator should venture to use an instrument like the dental engine without previously having acquired an absolute control of the hand-piece, and having studied carefully its dangers and limitations as well as its legitimate uses. The failure of operators to properly manipulate the engine is accountable for much of the prejudice against it. The principal dangers to be guarded against in extending these approximal cavities in incisors relate to the displacement of the bur by catching the blades against the margins of enamel and carrying the bur either into the cavity or out across the surface of enamel. To prevent this the hand-piece should be firmly grasped and the bur applied to the margin without too much force, and at such an angle that it may be maintained in position.

If the cavity is one which looks toward the operator, the bur may be held at right angles with the long axis of the tooth, and in that position it is not likely to slip. In cavities looking away from the operator where the position of the bur is more nearly parallel with the long axis of the tooth, the shank of the bur should have a bearing on the surface of the enamel in such a way that the bur will be braced against the displacement while the blades are playing along the margins.

After the cavity has been extended to the desired outlines the decalcified dentine should be removed. This is ordinarily best done with thin, sharp excavators, though in some instances the same bur which extended the outlines may be used for a few revolutions to remove the diseased tissue. In those cases where the decay has penetrated to any extent, this work should be done with spoon excavators to avoid needless pulp-exposure. An instrument wlth a sharp angle, as in the hatchets and hoes, is more likely to penetrate too far and puncture the pulp than one with a rounded form such as the spoons.

When the carious tissue is removed the walls should be shaped for anchorage. For the cervical wall an inverted cone bur of suitable size should be placed with its end against this wall, and the shank as nearly as may be parallel with the long axis of the tooth. It is then carried labially and lingually along the cervical wall till the proper form is secured. The end of the bur leaves the cervical wall flat, and produces nearly a right angle between the cervical and axial walls. This angle, while not strictly speaking a right angle (unless the bur is held perfectly parallel with the tooth), is sufficiently so for practical purposes, and the form left by the bur presents a surface parallel with the end of the plugger point, thus facilitating the adaptation of the gold against this wall. In cases where necessary the cervical wall may be slightly grooved with the bur, but in every instance it must be used with care and judgment to avoid too deep cutting and pulp-exposure.

As the bur reaches the cervicc-linguo-axial angle of the cavity it may be withdrawn crownwise along the cervical third of the lingual wall, making a slight groove at this point as before advocated. This groove formed by the side of the bur will be rounded. If deemed advisable it may be squared out with an excavator to an angle with the axial wall.

The labial wall is formed by placing the inverted cone bur with its end against the axial wall and its shank at right angles with the long axis of the tooth. By carrying the bur laterally along the labial wall from the cervical wall to the incisal angle the size of the bur will give form to the labial wall, and an angle will be created between that and the axial wall.

The incisal angle of the cavity may be formed, in cases where there is suitable access, by carrying the inverted cone bur down into this angle, cutting sidewise, with it end facing the axial wall. The form of the bur gives the required angle between the incisal and axial walls. Where the bur cannot be placed in the proper position to accomplish this purpose, the incisal angle may be formed with small, delicate excavators, and in the entire formation of the cavity indications may point to the use of excavators instead of burs. It is believed that with sharp burs carried in a hand-piece under perfect control more effective cutting can be made in a given time than with hand instruments, and yet the operator must not lose sight of the advantages of excavators under certain conditions, nor enslave himself to the prejudiced following of any one method under all circumstances. He should study the mechanical and the nervous requirements of the case, and readily adapt himself to the most serviceable plan of procedure.

The enamel margins may be bevelled with a fine-bladed round bur used in the manner advocated for cavity extension, or they may be planed off with delicate sharp chisels, as the case indicates.

### GENERAL CONSIDERATIONS.

It may be noted that some of the suggestions here advanced relative to cavity formation appear somewhat radical when compared with the methods generally in vogue in the profession. The advocacy of angles between the walls of these cavities may impress many as being illogical and impracticable in view of the orthodox teaching on the subject. Curved outlines to cavity walls have usually been suggested whenever there has been any suggestion at all. This has been done with a view of making a cavity into which the filling-material might easily be adapted, and one of the first objections likely to be urged against the formation of angles is the supposed difficulty of adapting gold into such angles. This question of the non-adaptability of gold to angles has been much overdrawn. It is simply a matter of proper manipulation, with pluggers of a suitable form to carry the gold into the angle. It need not here be stated that a round plugger is not the form for this purpose.

Gold can easily and accurately be adapted into a sharp right angle, as has repeatedly been proved by experiment. The advantages of making angles in cavities relate to the ease with which fillings may be started in such cavities, and the unquestioned security of anchorage without undermining and weakening the walls. Fillings built upon flat bases have a greater stability against displacement under stress than those built upon curved bases, and the gold is less likely to rock during its insertion.

It will be found that in the practical application in the mouth of the methods here advocated it is seldom that a perfectly sharp angle is ever made in one of these cavities, especially in any position where it is at all difficult to fill. The principle involved is merely the formation of flat walls instead of curved walls, and the operator who makes the trial of building fillings against flat walls after being accustomed to curved walls will not long remain in doubt as to which is the preferable method. There is a sense of security to the work as it progresses which is never experienced when the walls have been formed in curves.—*The Dental Cosmos.*

# DESTRUCTION OF PULP AND GOLD CROWN BY MERCURIC ACTION WITHIN AMALGAM.

By W. T. McLean, M.D., D.D.S., Cincinnati.

I have been greatly interested in the result produced by an amalgam filling inserted in a lower third molar, which was covered with a gold crown. The entire buccal surface of a right lower third molar was filled in March, 1894. The cavity extended below the gum margin and was not very deep. A few months after its insertion the patient returned and complained of a peculiar and very unpleasant taste about this particular tooth ; it became very offensive. I attributed the annoyance to oxidation or an acid condition of the fluids of the mouth affecting the amalgam, and I suggested that crowning the tooth with gold would no doubt prevent any further inconvenience, thinking that more convenient as well as more permanent. The patient permitted the operation as suggested and it was entirely successful ; the unpleasantness became entirely eliminated. This patient returned a few weeks ago, being absent about four years—quite a long time without consulting a dentist. Her visit was for the purpose of having her teeth examined, on account of some slight inconvenience. Imagine my amazement when I beheld the gold crown entirely disintegrated and porosity everywhere noticeable, and the slightest effort removed it. This was surely the result of a physical and possibly a physiological action of mercury. I have always felt that there are idiosyncrasies whereby amalgam or mercurial medicaments are contraindicated, and I believe that this experience will materially assist to bear out this *hardly settled question.* It has taken about four years for this change to occur—pulp is dead, incipient decay around a part of amalgam filling.

I have reprepared cavity, cleansed and antiseptically treated canals, filled them up with powdered asbestos, saturated with a 50 per cent. solution of silver nitrate; filled tooth with gutta-percha, and made new gold crown, 21-k., and set it. Saw patient recently and she is enjoying life from a masticatory standpoint, and I am thinking, conscientiously and scientifically, which is to blame, McLean or mercury! Some stomatological brother will confer a favour if he will explain. —*Ohio Dental Journal.*

## OXID OF ZINC AND EUGENOL.

By Dr. S. Blair Luckie, Chester, Pa.

In the report of the Committee on Materia Medica, from the New Jersey State Dental Society, there appeared under the name of "pulpol" a description of a new medicated cement for pulp-capping, the claim being that it is non-irritating, a bad conductor of heat, and a powerful antiseptic and anodyne, the chief ingredients being oxid of zinc and eugenol. Its consistency should be less than doughy; will harden in from five to fifteen minutes so that a filling can be introduced. It also has the property of hardening as well under saliva as if kept dry.

I do not wish to claim priority of use, but feel constrained to testify to the satisfaction I have derived from a mixture of oxid of zinc and eugenol alone, not only as an intermediate stratum between the floor of deep seated cavities and the filling, but as a covering to dressings, especially when it is desirous to avoid pressure, and also as a filling where a non-irritating, thermal protector and antiseptic is designated.

If properly mixed, that is, as much of the oxid used as the fluid will take up without becoming crumbly, and a good article of zinc used, a filling can be inserted that will last as long as the best cement. In the mixing, a condition will appear as though no more of the oxid could be added without producing the crumbling alluded to, but by patting the mass with the spatula, plasticity will return. It will harden more rapidly in the mouth than on the mixing slab, and will retain its quality as a filling material better in the tooth, as what remains of the mix becomes brittle after the lapse of time, while the fillings will present good margins and show comparatively good edge strength.

I have now had an experience of over four years with it, and have noticed that fillings in the approximal surfaces of molars and bicuspids will show no wasting in the least for one, and in some cases for two years. It can also be used as a pulp-canal filling, by being pumped in the canal and forced to all parts with a cone of gutta-percha, filling the canal antiseptically and producing no irritation beyond the apex.—*Items of Interest.*

## THE PULP AND PTOMAINES.

After the death of a pulp it is invaded by various bacteria, strictly saprogenic as well as pathogenic, the result of which is that the pulp becomes a foul, semifluid mass. This putrefactive decomposition of albuminous matter is effectedbya great variety of micro-organisms and give rise to a great variety of products, some of which are volatile and are characterized by their offensive odors. This putrescence was the result of first the splitting up of the albumins into peptones, which according to Flugge may be effected by a number of micro organisms, then the splitting up of the peptones into a large number of gases, acids, bases and salts. Among the produbts of putrefactive fermentation known to chemists are the following. Carbon dioxid, hydrogen, nitrogen, hydro-sulphuric acid, phosphureted hydrogen, methane, formic acid, acetic acid, butyric acid, valerianic acid, palmitic acid, crotonic acid, etc., etc.

A few words on ptomaines may not be out of place. It is a name suggested by the Italian toxicologist, Selmi, and derived from the Greek word *ptoma*, meaning a cadaver. A ptomaine may be defined as an organic chemical compound, basic in character, and formed by the action of bacteria on nitrogenous matter. They have also been called animal alkaloids, but this is a misnomer, because in the first place some of them have been found in the putrefaction of vegetable matter, and in the second place the termanimal alkaloid is more properly restricted to the leucomaines, those basic substances which result from tissue metabolism. While some of the ptomaines are highly poisonous, this is not an essential property, and others are entirely inert. Hence the severe and complicated conditions following in some cases a blind abscess or the opening of a putrescent pulp-canal, where we have exercised the greatest care. Since all putrefaction is due to the action of bacteria, it follows that all ptomaines result from the growth of these organisms. The kind of ptomaine formed will depend upon the individual bacterium engaged in its production, the nature of the material being acted upon, and the conditions under which the putrefaction goes on, such as the temperature, the amount of oxygen present, and the duration of the process. Ptomaines are the transition products in the process of putrefaction.—*Dr. Lawley York in Dental Review.*

## A DENTAL DANIEL COME TO JUDGMENT.

The vagaries of reflex action supply a principle of practice in medicine as convenient and elastic as is the Monroe doctrine in the foreign policy of our cousins across the Atlantic. When a man has firmly grasped the idea that the nose or the uterus, the liver or the rectum, by its comprehensive sympathies with the other parts of the body, is the enly true begetter of all disorder in the human microcosm, he ceases to trouble himself about many things that perplex those unprovided with a similar master-key to the secret chambers of pathology. Why should he vex his soul with riddles of diagnosis? He has found a general formula of treatment which, with a little ingenuity, can be applied to all cases that come before him.

We do not suggest that there is necessarily any conscious diohonesty in this. Has not Tristram Shandy taught us that the wisest men in all ages, not excepting Solomon himself, have had their "Hobby Horses?" Now your hobby horse may be a Bucephalus, or it may be a Rosinante, but in either case it is likely to run away with you. Illustrations of this tendency may be found in the writings of nearly all specialists. A particularly instructive example is to be found in a recent issue of our young contemporary, the *Dentist.* In an article on Reflex Action in the Antrum, by a writer who modestly hides his identity under the pseudonym of "Dens Sapientiæ," we are presented with the following list, which we are thoughtfully warned includes only "Some of the disorders and diseases of the system due to the reflex action of disease in the dental organs":—

"Affections of nerves and organs of sense :

1. Of the eye : Amaurosis, partial or complete, schlerotitis (*sic*), conjunctivitis, keratitis, strasbismus, dilatation or contraction of pupil, alteration of colour of iris.

2. Affections of sensory nerves : Neuralgia of face, head, and extremities : neuralgia of stomach and uterus ; persistent headache, hyperæsthesia, anæsthesia, earache and deafness, and discharge of pus.

3. Cerebral affections : Delirium and mania.

4. Perverted nutrition, secretion, and assimilation ; diarrhœa, dysuric urethritis, retention and incontinence of urine, lachrymation, salivation, parotitis, pharyngitis, tonsilitis (*sic*), ottorrhœa (*sic*), ozena, fibrous stricture of nasal duct, conyza (*sic*), catarrh, pleuritis, pneumonia, erisipelas, acne, eczema, prurigo, strophulus, impetigo.

5. Affections of motor nerves : Paralysis of face, trunk, and extremities : spasmodic twitchings, paralysing lingual muscles with loss of speech, spasms of glottis, trismus, infantile convulsions, chorea, eclampsia."

The pathology of our author is as original as his orthography. The latter may, of course, be due to his printer, but the classification of discharge of pus as an affection of the sensory nerves ; of pneumonia and erysipelas as effects of "perverted nutrition, secretion, and assimilation," and of eclampsia as an affection of the motor nerves is all his own. This is nothing, however, to what he can do in diagnosis. After mysteriously informing us that he will cite "a few cases of total blindness connected with total blindness resulting from actual disease," he proceeds in the style of Mr. Barlow to narrate the following interesting story : "A medical man asked me to visit a patient who was suffering from toothache. I did so, and found she was confined to bed ; she had lost the sight of one eye for some time. On examining the decayed root of an upper tooth, I told her that I felt certain it was the cause of her blindness, and that on its removal her sight would be restored ; she, however, said she believed it was lost for ever. I was, however, correct in my diagnosis, and the sight of the eye was fully restored." But the victorious dentist is generous, and allows that triumphs of art as brilliant have been recorded by others—notably by one "Galenowski." This gentleman's name is interesting. Is it possible that he can trace his lineage to the famous physician of Pergamus? We were not aware that any of Galen's descendants had settled in Poland.

We are sure that the medical profession would be grateful if "Dens Sapientiæ" had also cited a few of the cases of "dysuric urethritis" and "fibrous stricture of nasal duct," which he may have cured by extraction of the peccant tooth. But we suppose we should be thankful for his moderation, when he had the long catalogue of bodily afflictions to choose from, that he has not extended the sphere of influence of reflex action from diseased teeth still further.

We have a more serious quarrel with "Dens Sapientiæ," however, than his hazy pathology and his eccentricities of spelling and style. The real object of his paper is to convey the impression that Mr. Gladstone's death was due to the ignorance of his medical advisers. "There can be no question," says the writer, "to anyone who has had the opportunity to study this question of reflex action, that from first to last his case has been misunderstood, and has consequently resulted in the loss of a valuable life, which under prompt and suitable treatment might have been saved." He adds that, "as the medical attendants were fully aware that the seat of the disease was evidently situated in the antrum and nerves," a particular surgeon (whose name we do not mention, because we are sure he would resent the doubtful honour thrust upon him by "Dens Sapientiæ") should have been called in. But we gather that the only effective *deus ex machina* would have been a dentist. "There can be no question," says this very positive person, "if the advice given by a dental surgeon while he (Mr. Gladstone) was at Cannes had been followed, that the results would in all probability have been satisfactory. . . . It was very evident from the symptoms to anyone having experience in such cases that the cause of the disease was the presence of an odontome, the root of a tooth, or other abnormal growth in the antrum." Surely the force of presumptuous ignorance could no further go.

The writer plainly knows nothing of the facts beyond what he has learnt from the newspapers, and his paper is not calculated to inspire confidence in his power of interpreting them correctly even if he knew them more fully. Yet he pronounces dogmatically on matters as to which he is quite incompetent to form a judgment, and condemns the professional conduct of men of the highest eminence on no evidence but that of his own haphazard conjectures. When John of Gaunt thrashed Shallow, Falstaff told him that he was beating his own name; we venture to express a hope that it will not be long before "Dens Sapientiæ" cuts his own pseudonym. He will then, perhaps, have wisdom enough to act on the advice of Hamlet, and "play the fool nowhere but in's own house."

Seriously we think it a monstrous thing that a journal which in any degree represents the dental profession should have published a paper which would be malicious if it were not simply fatuous; and the offence is made worse by the solemnity with which the editor, who appears to adopt the opinions of his contributor, expresses his sorrow at the "unutterably sad revelation." Our contemporary owes an apology not only to the gentlemen so wantonly attacked, but to the dental profession whose "interests" it champions in so ill-advised a fashion.—*British Medical Journal.*

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ADVERTISING.—In a discussion at the Missouri Dental Association, Dr. Slater said that the Clause in the "Code of Ethics" which forbids calling attention to different styles of work was too sweeping, and that it was not unprofessional to do so. If we use cataphoresis he thought it proper to call the attention of the public to that fact. If we treat diseases of the antrum let the public know what can be done. There were men who devoted their attention only to crowns and bridge work, or to orthodontia, and he thought they should be allowed to say so in a card to the public. The other speakers apparently did not agree with these views, and an old practitioner, Dr. Price, said that he had noticed those who violated the Code invariably regretted the action.

# THE IDEAL LOWER DENTURE IN DIFFICULT CASES.

By Dr. J. D. Patterson, D.D.S., of Kansas City, Mo.

In the work of plate-making there are certain broad principles to be observed in all cases. First, the plate must rest with even pressure upon the mucous membrane it covers, and if such surfaces present areas of soft and hard resistance, then the plate in relation to those tissues must exert a compensating pressure. The soft tissue must give until an even plane of resistance is established, without which the plate will not adhere, will rock and will unduly press and irritate at points.

The second important feature is that of properly placing the teeth to secure natural and anatomical articulation. These two broad principles observed, as well as many other minor and less difficult problems solved, we may expect the best results in a large majority of cases.

To this statement there are exceptions, and it is to one of these classes of difficult cases I now direct your attention—the edentulous lower jaw, where the once prominent ridge has been resorbed through disease, through natural senile recession, through absence of plates, or by the wearing of ill-fitting or non-aseptic plates. Here we are confronted with a situation in which, although we observe all basal principles in plate-construction and every minor point usually taught, we find the denture so unstable and easily movable that it is anything but a pride to the operator or a comfort to the wearer.

A variety of contrivances to obviate this difficulty, spiral springs, and a variety of suction chambers or channels, patented and unpatented, have been devised to meet the demand and delude the hopeful, as they certainly have the writer in past years. The springs, in my opinion, are hardly worth considering ; they are ineffective and also intolerable because of the continual pressure and difficulty in cleansing. The numerous little suction points or deeper channels are sure to produce irritation at last, accompanied by greater absorption. On account of such irritation they are usually inapplicable because of the surface on which the plate must rest being so narrow, on account of the encroachment of muscular tissue, that they cannot be placed.

A solution of the difficulty in these cases is to supply, as well as a perfectly fitting plate, a heavy one, and the object of this paper is to recommend to you the very heaviest material made for that purpose—namely, Watts' "Metal." The use of heavy plates to utilize the force of gravity in the retention of lower dentures is nothing new, but in practice—save by employing weighted rubber—it is very little used.

The chief objection which is urged against the use of this material is that the muscles of the lower jaw soon tire of the superimposed weight. This, however, has not been my experience. To settle the question for myself I found in a patient an opportunity to test this matter and proceeded to experiment, with the result that in no case did I find the weight an objection, if the plate did not weigh over 50 pennyweights. The ordinary plate made of Watts' metal weighs about 34 pennyweights, the same of Weston's metal weighs 26 pennyweights; of weighted rubber, 20 pennyweights, and of ordinary rubber, 10 pennyweights. I found that the additional weight of Watts' metal gave a decided advantage in the retention of the plate, and the experiments all went to show that a plate weighing between 35 and 40 pennyweights never tires the jaw, and affords a comfort and satisfaction not attained by materials of less weight in difficult cases.

Another objection to the fusible metal plate is that the metal will not retain its colour and will produce a disagreeable taste. These features I have found in fusible alloy made by the dentist himself, but have not observed them in Watts' metal (the formula is not known precisely, but it is principally of tin, lead, silver and bismuth, as are all alloys of this class). In the dentures I have made of Watts' metal there has been no oxidation after fifteen years' use, and other dentists have confirmed this.

The most frequent objection is the difficulty in obtaining a good result, the claim being made that the metal will not flow in every point of the mould. I have gone through this experience, but now find no difficulty in securing a perfect cast from the mould. I use for model and investment the usual plaster, sand and asbestos of soldering investment, with the addition of a small amount of whiting to render the surface smooth, following the directions accompanying the metal, with the addition of pure beeswax as a flux. Before I used the beeswax as a flux failures were common, and I therefore give you this plan, which has not been before recommended, and am confident that it will ensure good results. The flux must not be used indiscriminately or unevenly, but as follows: After carefully removing every particle of base plate, heat the case and apply pure melted beeswax with a hot pencil-brush wherever there is doubt of the alloy following; just a smear of the wax will do the work, too much of a coating will result in failure.

When this is done and the case is clamped, joints luted, heated and dried until moisture will not condense on a mirror held before the pouring gates, the case is ready for pouring. Do not pour while the flask is very hot, but allow it to partially cool; do not overheat the metal, but pour rapidly just so soon as thoroughly melted.

I quite agree that reinforced gold plates with rubber attachment will give the necessary weight, and a more acceptable and handsomer result is obtained; but the great majority of patients wearing full lower dentures are unable to pay the fees necessary for gold. — *Western Dental Journal.*

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## A CASE OF ANGINA LUDOVICI.

By H. W. Webber, M.S., M.D. Lond.

A woman, aged twenty years, was seen with Dr. Hay of Plymouth, on May 29th, 1898. The history was that three days previously she had consulted Dr. Hay for a swelling in the right submaxillary region. This corresponded to a carious tooth and Dr. Hay advised its removal by a dentist. The patient was not seen again until the morning of the 29th, when her neck had become much swollen on the right side, the swelling extending to the middle line, and her general condition was much worse. The tooth had not been removed. Dr. Hay made a median incision below the chin and ordered the application of hot linseed poultices and prescribed a mixture containing a tincture of perchloride of iron every four hours. In the evening as her condition was becoming serious, I saw her with Dr. Hay about 10 p.m. She was then sitting up in bed. She was of a dusky purplish colour, her pulse was 120, and her temperature was 102° F. There was a brawny inflammatory swelling extending from he lobule of the right ear to the hyoid bone and upwards to the chin and lower jaw. The floor of the mouth was involved and the tongue was of a purplish colour and pushed up against the roof of the mouth. There was much dyspnœa and speech was impossible. Chloroform was cautiously given and I first deepened the incision below the chin opening up the subfascial tissues after Hilton's method. Another curved incision was then made in the right submaxillary region and the deep parts were opened up in a similar manner. From both the wounds dark blood and a little dark-coloured pus exuded. An attempt was then made to extract the carious tooth but it caused such dyspnœa that it was abandoned. The hot poultices were reapplied. On the 30th the patient was somewhat better. The pulse was 110 and the temperature was 101°. The swelling had gone down a little and she could swallow liquids. On the 31st she had a change for the worse. She was more cyanosed and dyspnœic and the left submaxillary region was swelling. As her surroundings were of a poor description and nursing was practically *nil* I advised her removal to the South Devon and East Cornwall Hospital. This was delayed until the following morning, June 1st, when she was admitted at 11 a.m. I saw her at midday and unexpectedly found her better. Her tongue was of a red colour and she was able to protrude it from the mouth. She could articulate and could swallow beaf-tea fairly easily. The incisions on the right side were beginning to granulate but there was still much swelling on both sides of the neck. It was decided not to interfere further for the present and hot boric fomentations were ordered to be applied every hour. About 7 p.m. she became suddenly attacked with dyspnœa. A little chloroform was given and I incised the left side of the neck, only dark blood flowing from the wound. Directly this was done respiration ceased. A long incision was immediately made in the middle line and was rapidly deepened, but the trachea could not be found, and after a search with the finger it was felt on the left side of the neck at the depth of the forefinger from the skin and some 2 in. from the middle line. The knife was pushed along the finger and the trachea was opened and kept open with sinus forceps, and artificial respiration was performed, but the patient failed to recover.—*The Lancet.*

# Dental News.

## DEATH FROM HÆMOPHILIA.

An inquest was held at Paddington, on the body of a lad, æt. 14, who had succumbed to uncontrollable hæmorrhage from a cut lip. The deceased had the misfortune to belong to a family of "bleeders," and it was stated that two other members of the family, both boys, had succumbed to the diathesis. It is well known that this idiosyncrasy is almost exclusively manifested in the males of a family, the females not exhibiting the characteristic uncoagulability of the blood, though they are capable of transmitting the condition to their male offspring. Were it otherwise, that is to say, if the female members of hæmophilic families were as amenable to heredity in this respect as the males, the taint would long since have become extinct. In a modified degree this hæmophilic condition is more frequent than is generally supposed, as dentists know to their cost.—*Medical Press.*

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
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# SOME MINOR DETAILS IN GOLD FILLING.*

By Mr. H. A. Robertshaw.

It may be taken as an axiom that perfection in gold filling cannot be attained without a large amount of care being given to those minor details of which one is so forcibly reminded by one's own failures, and by the failures or weak points one sees in the fillings of some expert operators. I have seen as a student and in private practice few perfect, and many imperfect gold fillings. Personally I have not been able to satisfy myself even with a simple cavity, but one learns from one's failures, and as students we have the double advantage of being able to discuss those failures with some of the foremost men in our profession, and also with our fellow students. Whatever we do for the comfort of our patients, particularly in private practice is not lost. We must have scrupulously clean hands and instruments, patients worth having will insist on this, and patients worth having are worth keeping.

Keep your surgery at an even temperature, if it is too hot it interferes with your own work, if too cold you will find your patient irritable. I have found a good method, particularly in a draughty room, is to throw a rug over the knees of your patient ; your patient is grateful and thus you are repaid for your trouble.

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* Read before the Students' Society, Victoria Dental Hospital, Manchester.

Next see that the head and back rests are perfectly com fortable. In the case of lady patients we shall at times find it difficult to attain this, owing to the different fashions and means of making up the hair. After the patient is comfortably seated, thoroughly examine the teeth, and make up your mind what you are going to do before commencing. It is, to say the least, irritating to put a difficult gold filling in, say, a distal cavity of a central tooth, and afterwards decide to cut off the lateral on the same side for the purpose of crowning. This done, having sufficient room for filling the tooth, and finishing the filling is the next consideration.

If we decide to divide the teeth, we must not make the mistake of trying to divide several neighbouring teeth at the same time, or the result will not be satisfactory. There are, of course, several methods of dividing teeth. I shall not discuss the separator, as I do not believe in it, except in cases where patients have come from a distance and can only make one visit, in which case there are several, of which I believe Perry's is generally considered to be the best. Of the gradual methods, cotton-tape, rubber, cotton-wool, gutta-percha, &c., are recommended, the first of which I invariably use ; the tape imbibes moisture, and after a few hours swells, slightly separating the teeth. It has this advantage, that you can instruct your patient to renew the tape themselves each day until they get four or six layers between the teeth. After this has been done until the teeth are sufficiently divided, there will probably be a certain amount of sensitiveness about the teeth, in which case it is sometimes advisable to put a little temporary gutta-percha between the divided teeth until the inflammation is reduced.

On the next visit of the patient, assuming that there is little or no sensitiveness, proceed to cut the cavity, breaking down all overhanging edges unsupported by dentine, with enamel chisels and sharp fissure burs, clear away all soft tissue with sharp excavators, and smooth the edges with sandpaper discs, put on the rubber dam fastening with retractors. Some operators prefer to do this before commencing with the cavity, but it has disadvantages which should not be lost sight of, not the least of which is that you are liable to tear the rubber with the sharp overhanging edges of the tooth.

To put on the rubber to one's satisfaction at times requires a certain amount of patience, especially is this the case with beginners. Do not be in a hurry, and above all do it thoroughly, taking care to let it embrace a large enough number of the adjacent teeth, so that it will neither obstruct the light, nor be in the operator's way during the remainder of the operation, see that the rubber is pushed between the gum and the neck of the tooth. I have often found that students wishing to save the patient some pain have refrained from tying this as well up as it should be, with in most cases disastrous consequences to both himself and patient, saliva finding its way to the filling before he has half finished it.

A difficulty which is frequently met with is the intrusion of the gum into the cervical edge of the cavity, so as to render difficult and very painful the adjustment of the rubber; the exeess of gum may be burnt away with a minimum of pain by means of sodium ethylate ; or after two or three paintings with cocaine, violence may be done to it without much, if any, pain, when it is not desirable to pack it out by means of cotton wool, which would involve the postponement of the operation to another day. If a jaw from which the soft parts have been removed be examined, it will be seen that a triangular space separates the necks of the teeth, the base being formed by the alveolar process, and the apex of the triangle by the convergence of the mesial and distal surfaces of the contiguous teeth. The interval so produced is occupied by the gum, and our object is to prevent its bleeding, and at the same time to move it from the edge of the cavity. To accomplish both purposes it is necessary to take a strip of soft wood such as willow, and cut or file it into a triangular rod. When reduced to a suitable size, introduce it by a steady pressure between the teeth, taking care that the base of the triangle corresponds to the edge of the alveolar process; by this means the gum will be pressed up against the latter part, the bleeding will be stopped, and the cavity of the tooth fully exposed to view. The introduction of the wood will occasion a little pain, at the moment, but it soon gives way to mere uneasiness.

After the rubber has been put on to your satisfaction, place a doily underneath, that is, between the dam and the chin. This is not only duly appreciated by the patient, but will also tend to the successful completion of the filling, as anything which places the patient more at ease, also aids the operator. Now place the weights in position and proceed to prepare the cavity. It is not necessary for me to say how I should prepare a cavity, as we have each as students adopted pretty much the same methods, but one thing I do wish to impress upon all, and junior students in particular, and that is, that time spent in preparing a cavity is time well spent, and a cavity well prepared and well shaped is, in my opinion, a cavity half filled. Get free access to the cavity so that all parts can be plainly seen either by direct or reflected light, preferably, of course, from the palatine side, but it is far better, if necessary, to sacrifice some of the labial wall than to court failure in the dark. Avoid all sharp angles, or deep pits; make sure the margin will be free so as to be easily kept clean when the teeth return to the natural position. Before packing in the gold, polish the edges with a fine strip, for a much closer adaptation of gold can be made to a smooth surface than to a rough one.

Just a word or two on starting pits. If a cavity is properly prepared it is only in rare cases that starting pits are required ; these starting pits seem to be more than a good many students can manage with confidence. Let me impress upon you that they are not retaining pits, as they are often called, but merely for the purpose of getting a solid foundation for the gold. They are made by drilling with a small bur into the dentine at the cervical edge until the bur is covered, then enlarge the cavity somewhat before withdrawing the bur. It is advisable to make two of these at the cervical margin and join the two, their direction being such as to carry them between the pulp and the enamel, approaching neither too closely. An opposing point should be made at the cutting edge of the tooth.

In inserting gold into a cavity every man has his own fancy. Personally I am an advocate of hand pressure where possible, as anyone who has cultivated strength in his fingers with that peculiar motion known to the hand worker, and the drop of the wrist, can properly impact gold without mechanical adjuncts. Small pincers and small points should be used, especially for cohesive fillings. First fill any starting pits and join them, then take care to fill all angles and difficult parts while they are still accessible ; bring your gold a little over the edges of the cavity, contour your filling so that it and not any portion of the tooth comes in contact with the next tooth.

One great failing in putting in gold, is that operators do not put the force in the proper place. This is most important, all the force should be applied to the sides of the gold, not only this, but the ends of the sides should receive the point of your plugger first, for if you use the mallet in the centre before the ends of the side, you will surely find your gold will roll. In applying all the force to the sides of the cylinders we are compressing together parallel layers of foil, and can succeed in making a comparatively solid plug, whereas if we attempt to condense by compressing the ends, they at once become knotty and hard. In finishing a filling if the gold is cohesive little impression can be made on it by burnishing, but in a non-cohesive filling, the filling should be burnished, taking care to do this towards, and not from the edges of the cavity, then use disks and strips. Let these be small, as the shape of the contour is often spoiled by the injudicicus use of broad strips and discs.

One other thing let me impress upon you. In using the disc do not allow it to remain on the filling too long, as it causes a pain, which is surprising and is not easily understood, to one who has not had it used on his own teeth.

Gentlemen, in conclusion, my paper is a very imperfect one, imperfect because it has only treated of what I have constantly seen to be your failures and my failures, and I believe it to be to our mutual advantage to talk over these and not shut our eyes to our own imperfections.

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## INTRODUCTORY ADDRESS.*

By Sidney Spokes, M.R.C.S., L.D.S.

The one subject with which we are here to-day unanimously concerned is that of the great Healing Art. Postulating that the existence of the medical profession is good for the State, it follows that in order that it might survive, be brought to its highest condition, and be so maintained, two things were necessary—the two things which are necessary in the lives of all individuals or institutions. First, that during its infancy it must receive benefits in proportion to its incapacity; and secondly, that when mature it must receive benefits in proportion to its capacity. Has Medicine received these parental attentions?

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* Delivered at the Medical Faculty, University College, October 3rd.

Its origin is lost in the shades of antiquity, and some of its early ancestry, although very interesting, can scarcely be called ennobling. But at all events it was human, and dates back to the time when Primitive Man first struggled above the animal level. We are told that in investigating the state of things then existing, "a satisfactory distinction between priests and medicine-men is difficult to find. Both were concerned with supernatural agents, which in their original form were ghosts; and their ways of dealing with these supernatural agents were so variously mingled, that at the outset no clear classification can be made." Now, according to Mr. Herbert Spencer, when a mythology became sufficiently evolved to have gradatious of supernatural beings, the priest usurped the medicine-man's functions, and became conspicuous and powerful, and, as you will probably agree, has remained so. May we not speculate in passing, therefore, whether those trephine holes in prehistoric skulls to which Mr. Victor Horsley has drawn attention, may possibly have been the work of the usurping priest rather than of the medicine-man, and that the operation was performed with the object of finding the ghosts of dreams rather than to cure epileptic or other abnormal conditions.

Ruskin has said that man's proper business in this world falls mainly into three divisions. First, to know themselves and the existing state of things they have to do with. Secondly, to be happy in themselves and in the existing state of things. Thirdly, to mend themselves and the existing state of things as far as either are marred and mendable. Shall we apply these rules to the medical man? A little introspection may be a good thing, for is it not well to stop some time or other during the year's work and enquire how we stand? What is the existing state of things?

It will perhaps not be either profitable or wise to speculate *how* the profession of Medicine has been left behind by both the Church and the Law in the race for supremacy in the State, and indeed, there is some difference of opinion amongst members of our profession as to the advisability of our taking part in any struggle. At any rate, it cannot be denied that whilst both the Church and the Law are very strongly represented in the Legislature, Medicine is, numerically, without its due recognition, and thus it has come about that our Statutes are much more concerned with commercial and financial affairs than with the value of human life and health. We have recently been told by a good authority that there is in the House of Commons a sort of feeling among a great number of the members that the medical profession is but a refined form of trades unionism seeking rather its own good good than that of the public at large. We have also been presented with a valuable prescription for the treatment of the parliamentary endemics of faddism and fanaticism. Professor Roberts considers that the House of Commons requires not a soporific, but stimulants and tonics, and we shall agree with him that such treatment may bring about the results desired, and that "the Legislature will recognise its duties to the profession as the profession recognises its duties to the Legislature."

I think, however, that most of us will also agree that Medicine irrespective of purely political considerations must continue to rely mostly upon its own good work in order to increase its authority. It has been said that authority is the chief privilege of age, and Medicine, as we have seen, has probably a better claim to it than the Law if not than the Church. This question was discussed it appears at Dublin University in Dr. Swift's time, and gave the witty Dean an opportunity of supporting the side of medicine. He says, "the nicest logicians will allow it a fair way of arguing in all cases, to refer to things what is true as to persons; and therefore, I conclude, if physic be a faculty more ancient than that of civil law, then it literally goes before it, i.e., takes place of it, and I hope it will not be denied that physic is as old as the occasion of it—as old indeed, within a few days as mankind; which can by no means be said of the other, in comparison, upstart profession, unless any one will be so hardy to affirm that there was a Doctor's Commons or Bishop's Court in Paradise. And if any man should insist to know the year and day of the rise of physic, I take him to be ignorant of religion and history and will disdain an answer, though I could tell him not only what the first distemper was, and that epidemical, viz., a falling sickness, but also who it was that cured it, but I do not think fit to satisfy dulness and ignorance so far." . . . "Place the controversy on another footing and argue from the natural dignity of medicine itself, and the universal use and benefit of it to mankind; for it is well known that physic has been always necessary to the world and what mankind cannot be without. It has been requisite in all ages and places, which is more than can be asserted in behalf of law either civil or common.'

In spite of such pleading, however, it is difficult to avoid the confession that Medicine, up to the present has not been able to speak with the same weight of authority as either the Church or Law, and whilst we may say that the medical profession does not wish to obtain any aggrandisement of a personal nature other than that which enables it the better to fulfil its destiny, we must at the least demand that it shall have full scope for working out its noblest ends, and until this be granted we cannot ignore the necessity for some self-assertion. A recent writer has divided the human race into savages, the civilised and the cultured, assigning to each of these three grades—the lower, the middle and the higher, the lower culture being the term of man's progress so far. But when the middle culture shall have arrived, which the author thinks cannot be in less than four or five centuries, it is to be feared that even then there will be a certain proportion of the people opposed to medical progress. For it is not only the ignorant who merely remain indifferent that require instruction. As you know, gentlemen, there are those who have received a liberal education, who from some obliquity of mental vision are not merely unable to appreciate the benefits of medical science, but even feel constrained to actively oppose and obstruct. The recognition of "conscientious objection" should now logically be extended to "peculiar people," and the question indeed arises whether there is any good to be derived from attempting to convince such persons or whether it would not be wiser to leave them and their descendants to the action of those natural forces which eliminate the unfit. But this suggestion opens up a vast problem. It has been urged that hospital work and medical skill generally, interferes with the natural evolution of the race by the preservation and multiplication of the unfit. One has only time for a few words, and perhaps it will suffice to quote passages from Mr. Howard Collins' epitome of Mr. Herbert Spencer's works. He makes two great divisions of Altruism: Justice and Beneficence. Justice implies a sympathetic recognition of others' claims to free activity and its products. Beneficence implies a sympathetic recognition of others' claims to receive aid in the attainment of those products and in the more effectual carrying out of their lives. There are two kinds of beneficence; one, positive, which implies sacrifice of something that others may be benefited; the other, negative, which is characterised by passivity at times when egoistic pleasure might be gained by action, and also implies that the most eminent professional men should so restrain their practices, by raising their fees or other means, that everyone consulting them may obtain proper attention, and, indirectly, thus benefit their own healths. This perhaps may be taken as Mr. Spencer's view as to the advisability of senior consulting physicians and surgeons "taking silk."

In regard to aiding the sick and injured, any member of the family who is suffering from illness or accident should receive solicitous care. It must be borne in mind, however, that those domestic invalids who make undue demands should not receive unlimited attention. Often a whole household is subordinated to the exactions of a sickly member, and such tyranny must be resisted. Concerning that wider beneficence which expends itself in care of sick persons not belonging to the family, it is difficult to say anything definite. Each is rendered more or less special by the character of the patient and the circumstances; so that general propositions can scarcely find place. There can be no restraint on ministrations to those who have met with accidents. A provident beneficence even suggests acquirement of the knowledge needful to assist sufferers before professional aid can be obtained.

This seems to be the most we can expect from the philosopher bearing upon the subject of preservation of the unfit by medical science, and perhaps we must content ourselves by saying that such treatment is a part of our civilization, which itself is a factor in evolution. In any case, if it is to be decided by legislation whether a parent is to be allowed to "conscientiously object," or, on the other hand, to be forced to accept parental responsibility, it must, I think, appear evident that we cannot all rush into the breach and carry on a vigorous political attack. This must be left to the few who, from special personal qualifications and exceptional opportunities, seem more fitted for such work. For the large bulk of the profession nothing remains but to practise their calling honourably, and to use their influence quietly, but not the less effectively, in the more limited sphere of the "common round" and in this way help to educate the public mind. They should, however, keep themselves well informed as to any new legislation which may affect them, and take favourable opportunity of discussing such things with their fellows.

Another of the existing state of things has to do with our own education. The present scheme is the result of repeated modifications and additions, whilst its cost has continued to increase. It was to be expected that this and the extension of the curriculum to five years would result, at all events at first, in a reduction of the numbers of medical students. The amazing extent to which the bounds of medical knowledge have increased renders the preparation for practice proportionately arduous. The immense strides, for instance, in medical diagnosis call for an extensive acquaintance with chemistry, physics, and the allied sciences, whilst the claims of pathology demand that no relaxation can be tolerated in those more professional studies of anatomy and physiology, the latter of which is continually bringing new ground under cultivation. When we reflect that special qualifications of mind are necessary in order to successfully acquire, apply and adapt all this special knowledge to the best advantage, it becomes clear that the modern student of medicine must be regarded as a highly evolved product, to be compared favourably with the most advanced of any of the human results of our present civilisation. It is satisfactory to think that the Commission, appointed by an Act recently passed, will be able to offer an additional reward to the average London student in the form of a University degree. In regard to the sifting machine which presents us with the tested results, the examinations are in this country conducted by various Bodies, which are only indirectly responsible to the State. But, so far as stringency goes, I imagine that no one, at all events of those present here, will accuse them of lack of zeal. I am told that it is almost an exception for a man to go through the necessary examinations at the Royal Colleges without at least one failure at some stage, and that this is considered a sufficiently reasonable explanation for the modern parent or guardian when the unwelcome intelligence has to be transmitted.

The next factor is, of course, the registration by the General Medical Council, and in addressing students one perhaps should be chary of criticism which might arouse any want of reverence for the Body which not only control medical education and registration, but also regulates discipline. Those who are about to enter into practice should naturally feel some interest in the matter, but it is a fact that insufficient attention is given by the general medical practitioner to the election of direct representatives. There is a large proportion of men who, for some cause or another, do not exercise the privilege of voting. Medical men are, no doubt properly, much occupied with their work, and it is notoriously difficult to interest them in professional affairs, but the election of men to represent them on the General Medical Council might surely stimulate them to record a vote on the rare occasions which present. Until they do so, the claim of their brethren to an increase in the number of direct representatives is a little hard to maintain.

One of the most important steps recently taken by the Council is the amplification of the rule in regard to "covering." As an almost natural corollory, notice has now been given that a registered practitioner wil be liable to proceedings before the Council if he knowingly allows unqualified persons to attend or treat patients in respect of matters requiring professional discretion or skill. No doubt an immediate compliance with this decree must lead to considerable inconvenience in many practices, and a good deal of protestation has been manifested. In addition to the dislocation of the work, there is the serious question as to what is to become of the unqualified men, many of them of middle age, with families depending upon them. It has even been suggested that some sort of examination should be instituted with the view of conferring an assistant's qualification, but this would doubtless lead to much confusion in the public mind and at a time when it remains necessary to make matters still clearer than they are, The leader of the House of Commons in replying to a question on this grievance, said the Privy Council could not interfere, but that the General Medical Council would deal with each case brought before it, on its merits. It may probably be safely left thus, and in the course of time things will so settle down that assistants' places will be occupied by those who, at the expenditure of time, labour and money hold a legal qualification to practise. In this way some of the troubles resulting from over-crowding in the profession may be obviated, whilst a careless, ignorant or indifferent public will, it is to be hoped, learn to appreciate the increased benefit conferred by those who, having given guarantees to the State should receive adequate recognition.

This leads us easily to the consideration of our direct relationship with State control. Legislation is no doubt a good thing in its way, but it is possible to have too much of it. As an instance may be mentioned the story credited to one of the United States of America. By one enactment it was decreed that no person should graduate in medicine who had not dissected the whole of the human body. Under another law it was forbidden to submit to dissection the bodies of any except executed criminals; and then later a Bill was passed abolishing Capital punishment. The principal statutes affecting the medical profession number between forty and fifty, and, as might be expected, not only deal with the various offices and emoluments open to the profession but are also concerned with the pains and penalties which a breach of duty or neglect of legal obligations may render a man liable to.

Quite recently we have had an opportunity of observing the value which is placed upon medical authority and expert opinion by the passing of the Vaccination Act. In spite of weighty official representations as to the necessity for vaccination, the conscience clause was accepted by both Houses. But the impression left upon one's mind by the discussion was, that the majority did not really dispute the value of vaccination, but from some reason or another succumbed to the views of so many of their constituents and Boards of Guardians throughout the country. Curiously enough, twenty-seven years ago a Select Committee recommended that no more than two penalties should be imposed for the same child, and that was adopted in the Bill which then passed the Commons. In the Lords, however, whilst seven voted in favour, eight were against the Clause, and the Bill was lost by this one vote. In regard to the present Act, whilst we may express gratification at the protest by the House of Lords, I think we need not on the whole feel too much regret at the new legislation, especially if supplemented by an insistance upon re-vaccination. Without going into the question of "liberty of the subject" and "conscientious objection," one may recollect the unpleasant task it always was to vaccinate the offspring of an unwilling parent. There is still one danger remaining under the new Act which seems to have escaped attention. In spite of improved lymph, I venture to prophesy that there will still occur occasional instances of "bad arms." As in the past, certain ignorant mothers will endeavour to rub the lymph away directly the operator's back is turned, and the fact that vaccination is now to be performed in the private dwelling house instead of a public station, will, in my opinion, conduce quite as much to the introduction of other inoculation than vaccinia. In any case, the anti-vaccinators have now provided the nation with a monster experiment upon the living subject, which, whilst not needed by the majority, will be none the less interesting to watch, from the rate-payer's point of view, if from no other.

Let us conclude our brief sketch of the existing state of things by a more pleasing reference to the new Army Regulations for the Medical Service. The number of army surgeons is slightly over 800—too small probably, but their recognition now as something better than "camp-followers" reflects honour on the profession to which they belong. The formation by warrant of the Royal Army Medical Corps, will do something towards giving the surgeons a proper standing; they have, I believe, a larger proportion of Victoria Crosses than any other arm of the service, and will doubtless continue to maintain the high reputation for devotion to duty which army doctors have always held.

Can we, then, take Ruskin's advice and be happy? I think so, but it is of course a question each will answer for himself. That we are not completely satisfied and content need not make us unhappy. It is said that the happiest man is he with the least ambition and therefore with the fewest disappointments. That is not the kind of happiness the Medical Profession should enjoy, and we may perhaps remember that our text allows us to alter the existing state of things so far as they are "marred and mendable." There is no difficulty in framing a list of needed improvements: one is embarassed only at having to select examples. It goes without saying that it is easier to make a retrospect than to project one's ideas into the future; it is easier to study history than prophecy, and perhaps more useful. What has happened in the past is more or less authentic and can be discussed from the standpoint of to-day. On the other hand, that which is to happen is always felt to be more or less shadowy and indistinct, and perhaps fails to interest one from the strictly practical aspect. And yet, such is human vanity; or to put it more charitably, such is the feeling of duty to one's successors that a large number of people are actuated by the belief that they have the moulding of the future in their own hands.

Leaving on one side the question of representation in Parliament, and at the General Medical Council, to which allusion has already been made, I would suggest that one of the great necessities in the future is a continuance of the struggle to keep the practice of medicine upon professional lines. It is essential that the patient should feel that he is being treated by one whom he may trust to do the best for him with the least possible admixture of the commercial spirit, whose diagnosis, treatment and prognosis run no chance of being vitiated by any ulterior motive of increased pecuniary gain. With these objects in view it might be well, for instance, that as far as possible the medical man should dispense with dispensing, and that the supplying of drugs should be left in the hands of pharmaceutical chemists, who may properly claim by their training to do this work. I know that in some country districts it is impossible, and that in some particular cases the patients themselves might prefer the present method. But I think the time has come for the medical practitioner to charge his fee for the actual attendance and skill, and not for supplying material. The sweating of medical men by certain Medical Aid Societies is another phase of commercialism, for which it must be hoped some remedy can be found.

Passing from this subject one may next notice the existence of unqualified practice by absolutely irresponsible persons, which brings much discredit. Nothing short of preventing unregistered persons practising "for gain" is, I am afraid likely to stop this, and even then unless there is some amendment of the Companies Acts, there would be an opportunity for escape. Many are not aware that under the present Act an unregistered man who has been successfully prosecuted can proceed with the help of a half-a-dozen relations to "turn himself into a company," and as such may legally do exactly the same thing which was illegal for him as an individual. This is perhaps the most "marred and mendable" thing before us, and fortunately there is reason for thinking that the present Government intend to deal with it.

ANÆSTHETISTS AND UNQUALIFIED DENTISTS.—A story which comes to us from the North serves as an instance to show that the recent decision of the General Medical Council should bear good fruit. A lady went to a chemist practising as an unregistered dentist. He extracted some teeth and recommended that others should be treated in the same way and replaced by dentures. The patient enquired the charges but said that she would not undergo further extractions without an anæsthetic. She seems then to have asked a doctor if he would administer ether, and he properly told the patient to ask if the operator was to be a registered dentist. On receiving the answer that he was not registered but could do all a registered man could do, the lady sent a fee for the previous extraction and said she would not further require his services. The unregistered one again replied enclosing an account for the artificial teeth and saying he shall be pleased to "complete the contract made" as soon as is convenient to the lady. He says he does not need any medical man's assistance, and if this alludes to the making of such contracts then we quite agree with him. However, it would seem that the lady does not admit any contract, and it will be interesting to learn what, if any, steps the chemist will take.

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LONDON, OCTOBER 15, 1898.

# HIGH FEES.

We publish in the present issue of the JOURNAL a County Court case in which a dentist sued his patient for the balance of an account which he affirmed was due to him for work done. The work seems to have been preparing and stopping five teeth, and the fee demanded was twenty-eight pounds. The defendant paid fifteen pounds, and the action was to recover the balance, namely, thirteen pounds. The dentist lost the case, and if the facts tally with the published report, we consider that he deserved to lose it. The bargain seems to have been that the work should be charged at the rate of a guinea for every half hour, and with this arrangement we have no wish to find fault, as it is a very usual charge for dentists in high-class practice to make. But as a rule a tooth can be prepared and filled in that time or in double that time, and the charge, being a usual one, is readily paid. But when the fee amounts to nearly six pounds a tooth, it seems to us that the patient has a right to resist the charges, for either some very complicated or elaborate operations, of which no mention is made, were executed, or the operator must have been excessively slow over his work.

We consider that dentists who endeavour to obtain "fancy fees" from their patients, do a grave wrong to the profession. There should be the fullest confidence between the dentist and his client; the feeling that on the one side everything is being done for the welfare of the patient, and on the other that the fee should be a reasonable one. If circumstances arise which tend to make the operations more elaborate and costly than was anticipated, the patient should be advised that such will be the case, and an estimate should be given as to the probable charges. In fact, as a general rule, especially with fresh patients, it is always advisable to have an understanding as regards fees before the work is undertaken. We do not suggest for a minute that the plaintiff in the present case acted in a dishonourable manner, but we do say that for him to present such an account to the father of his patient (the arrangement was evidently made with the young lady), and think it would be paid without protest, was expecting altogether too much. As regards the statement of three operators working on one filling at the same time, it is too grotesque for comment.

Our profession is at present in a curiously mixed condition. There are a large number of practitioners on the register who carry on their profession according to their light, who have never undergone a curriculum, and whose technical abilities in the finer branches of operative work do not stand very high. They, nevertheless, are useful members of their calling, and carry on their practice in an honourable way. Succeeding these is a steadily increasing number of younger men who are being turned out from our Hospitals, well versed in dental art and science, and anxious to do good work at fair fees. There is a third class, sometimes advertising, sometimes non-advertising, sometimes capable, sometimes grossly ignorant, but who all agree in one (to them) essential point, namely, to make money without being too particular how it is done. While this last-named class exists in large numbers, as it does at present, our profession cannot succeed in winning that respect which ought to be its due. We do not suggest that the case we have been commenting upon was an illustration of the third class, we think it was most probably an error of judgment, but a case which was recently brought to our notice will illustrate one of the worst specimens of this class of practitioner. A lady came to a certain dentist, who as a great favour undertook to refill certain teeth, which did not require it, for a high fee. A year or two afterwards the lady came again for inspection. She had married and changed her name, and the practitioner neither recognised her nor his work. He immediately condemned the fillings which he said had been scandalously done. The patient allowed him to refill them, and when he asked for his fee reminded him that it was his own work, and as by his own admission they were scandalously done, she would certainly not pay for them again. Needless to say the fee was not pressed for in Court.

A CURIOUS KAFFIR CUSTOM.—It seems that a superstitious custom exists amongst certain of the tribes in Rhodesia, that if a child cuts its top teeth first, it is unlucky, and the child should be immediately done away with. The grand-parents in a recent instance, drowned the child, and were promptly hauled up for murder. There was no doubt about it, they were guilty, and the Judge passed sentence of death on them both ; but it having been proved that the crime was not one of vindictiveness but of native custom, a recommendation to mercy was put in, which the Judge said would undoubtedly be favourably considered by the Acting-Administrator. These natives will not be hanged, but the action taken by the Government will serve a useful object lesson in showing to all these tribes that the laws of the white man do not allow of infants being drowned because they "cut their top teeth first."

BUDDHA'S TOOTH.—There is great excitement in Burmah over the discovery of a tooth alleged to have belonged to Buddha. The story runs that Dr. Fuhrer, who was the curator of the Government Museum at Lucknow, discovered a "genuine" tooth of Guatama Buddha and sent it by parcel post to U Ma, the abbot of the Mahati Paya monastery at Katha. The tooth was declared to be one of the "Athambinana" or seven great relics, which consist of the four teeth, two collar bones and the frontal bone of Buddha, which had een saved by a shower of rain when the body of Gautama was being cremated by his followers. But unfortunately for the discoverer and the relic-worshipper it has been proved that Dr. Fuhrer's discovery is not a relic of Lord Buddha but the tooth of some animal! This is not surprising when the dimensions of the tooth are considered—three inches in length, one and one-eight inches in breadth and width and weighs about twenty times as much as the molar of an ordinary human being in the present day. In the days of Buddha it is very doubtful if human beings were of such gigantic proportions as to be able to wear with ease a tooth which would be too big for a large sized horse, and, barring miracles, it cannot be said that the teeth of even defunct saints grow by keeping. Did Dr. Fuhrer intend to play a practical joke on Buddhists or did he believe himself in the genuineness of the tooth? In any case the Government of India have called on Dr. Fuhrer for an explanation, and he has tendered his resignation of Government service.

IDENTIFICATION BY THE TEETH.—It will be remembered that at the disastrous Charity Bazaar fire in Paris that the charred remains of several individuals were identified by means of the fillings in the teeth. But this method is not infallible, as may be seen in the case of a mysterious murder lately exercising the minds of the police on both sides of the Atlantic. A Miss Grace Perkins, belonging to Middlesbrough, recently disappeared from home; and at the same time a young man, of rich parentage, named Charles Bourne, who had paid her marked attention, was also missing from the district. Inquires failed to disclose their whereabouts. Some time afterwards details of what appeared to be a terrible crime were published in the Connecticut papers. It seems that some lads passing over a bridge spanning the Yellow Mill Pond at Bridgeford, in that State, saw two parcels lying in the mud. They picked them up, and were startled to discover that they contained human remains. The father of the missing Grace Perkins having read of the crime, travelled to Bridgeport and identified the body as that of his daughter. To make doubly sure he returned home and saw the dentist who had had care of his child's teeth. With this man he went to the long distance telephone and rung up the morgue at Bridgeport. A few inquiries concerning the peculiarities of the gold filling of the teeth in the dead girl's mouth settled the matter. The body was that of Grace Perkins. Upon this foundation was reared a frightful fabric of criminal suspicion against Bourne, and it was said to have been "discovered" by the police that he and Miss Perkins had gone to an institution kept by a lady doctor at Bridgeford. But the newest phase of the affair would appear to be the most extraordinary. The latest from Connecticut is that Miss Perkins and Mr. Charles Bourne have returned home, their absence having involved nothing worse than a honeymoon, following a runaway marriage. The dentist's indentification by telephone of the mutilated remains has proved for police purposes a failure.

KNOWLEDGE OF NITROUS OXIDE ANÆSTHESIA.—The advice of Mr. SPOKES to the Students of University College Hospital to make themselves fully acquainted with nitrous oxide administration is commendable. In a great majority of cases the general practitioner knows little or nothing of its properties and administration, and is terrified at the physical changes it produces in the patient. The many virtues of this anæsthetic are receiving more recognition, and there is no reason why its scope should not be largely extended. We publish a short paper by Dr. FLUX, which appears in the *Lancet* advocating a new and "open" method of administration.

FRENCH COMMENT ON THE PRINCE'S ACCIDENT.—According to the *Lancet*, Dr. Lucas Championnière, the celebrated senior surgeon at the Beaujon Hospital and a member of the Academy of Medicine, has published in his paper, the *Journal de Médicine et de Chirurgies Practiques*, a noteworthy article entitled "The Prince of Wales and his Fractured

Patella." He there states in bitter language that recent advances in surgery are not enough to make the medical attendants of the Prince undertake the responsibility of applying them in this case to a patient of such high degree whose successful treatment puts their reputation at stake. He is perfectly astonished that at the consultation in which Lord Lister himself took part the idea of operative interference was unanimously rejected, especially as the distance between the fragments was more than two inches. It is amazing that in the country of Lister, to whom is due the first idea of treating this form of fracture by direct suture, the Sovereign (*sic*) should not enjoy in the same degree as the least of his subjects the benefit of this admirable treatment—unless, indeed, there was something in the general health of the patient to contra-indicate any surgical operation whatever, and such contra-indication has never been hinted at. Dr. Champonnière would without doubt have freely opened the joint and brought the bony fragments together by two stout sutures. He has himself treated 53 cases of fractured patella in this way, who have all recovered perfect use of their joints and are able to do the hardest work. Among these was an acrobat who two months after the operation used to perform in a circus *le saut perilleux.* Even elderly persons rapidly recovered after the operation. On the other hand, he has always seen immobilisation leave stiffness in the limb for the remainder of life as well as muscular atrophy and diminished physical activity, leading at a certain time of life to all those cardio-pulmonary and gastric complications which come from want of exercise. The article finishes in the following words : "These are the reasons why I consider, until more ample information is forthcoming, that one must regret that we have not seen this operation performed upon a prince who possesses the respectful sympathy of all Frenchmen, and whose proverbial activity is so desirable for all, and not merely in his own interests but those of humanity."

Messrs. G. Jerrard and Co., of 107, Regent Street, announce that they have taken a photograph of Professor Virchow. Some of our readers may like to possess a portrait of the eminent pathologist.

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A Case of Hæmophilia.—Dr. Royds Jones relates the following interesting case:—"E. L., aged 7 years, has attacks of hæmatemesis at intervals varying from two to four weeks. I have never measured the quantity vomited, but it is considerable and of a bright colour. The first attack occurred when she was still in long clothes. Her motions are usually dark coloured and several times there has been decided melæna. A very slight pinch causes bruising, and the mother states that she noticed this characteristic within a few days after birth. When the little patient first came under my notice in January last she had slight swellings of both knees and wrists, which became discoloured a day or so later. A small pin prick in February bled for 24 hours and about the same time one of her teeth came out, 36 hours afterwards the blood was still oozing from the gum. I was informed that the bleeding lasted for nearly a week when another tooth was extracted the previous year. The midwife who attended at the birth of the child tells me there was nothing abnormal at the confinement, but that a few days later some bleeding occurred "round the insertion of the cord." This is evidently a case of true hæmophilia. The two features that render the case noteworthy are—first, the sex; secondly, an absence of any family history of bleeding on either parent's side."

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Ichthyol in Dentistry.—The American *Medico-Surgical Bulletin* says that Dr. H. Floris reports very favourably of ichthyol in the treatment of alveolar pyorrhea and in painful receded gums. In pyorrhea alveolaris he used the ichthyol in the undiluted state by means of cotton-wool held on a gold needle, by which he carried the medicament into the alveolar cavities. The cavities were syringed twice or thrice a week, in addition, with a warm 50 per cent. solution of the drug, the patient being directed to rinse the mouth out twice a day with a solution of from 10 to 15 drops of ichthyol in half a glass of warm water in the meantime. Gentle massage to precede the rinsing. In painful receded gums, and in cases where the teeth are sensitive to change of temperature, to touch, sweets, and to the acids of certain fruits, etc., the undiluted ichthyol is painted on the sensitive part twice or thrice a week, with a camel's hair pencil, with the result that in two to three weeks permanent relief from pain is had. In this respect the preparation is greatly superior to the remedies usually employed, such as silver nitrate, for instance, since it exerts no caustic effect nor causes discolouration. The writer to the *Bulletin* has also employed the remedy with remarkable results in hæmorrhages following extractions, the most severe being rapidly checked by inserting a tampon of 25 per cent. ichthyol cotton into the cavity and retaining it in place by the usual means.

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A DEODORIZING AND ANTISEPTIC MOUTH WASH for use in the Treatment of Necrosis in the Mouth, Fractures of the Jaws, or of Extensive Ulceration of the Softer Tissues of the Mouth is made as follows :—

Carbolic Acid (liquefied), twelve minims.
Tincture of Iodine, six minims.
Distilled Water to one fluid ounce.

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AN ANTISEPTIC PULP-CAPPING MATERIAL.—For filling over a traumatically exposed pulp, mix one-third hydronapthol powder with two-thirds any good cement powder ; mix as usual with any cement. If there is any pericemental inflammation treat with pure beechwood creosote until the inflammation subsides, before filling as above.—*Dental Brief.*

# Abstracts of British & Foreign Journals.

## A RESTATEMENT OF THE TOOTH-BLEACHING PROBLEM.

By Dr. Edward C. Kirk, of Philadelphia.

From a general survey of existing ideas upon the question of tooth-bleaching one cannot avoid the inference that our practice in this line of treatment is almost wholly empirical. Practitioners concern themselves principally with methods of procedure and the detail of minutiæ which go to make up a given bleaching process, rather than with the scientific reasons why the process is applicable, or from a rational understanding of the conditionsto be met. Hence it is that we hear more of the relative merits of given processes for tooth bleaching than we do of the principles which govern their successful use. But the best and most uniformly successful results in this as in any line of treatment can never be attained through the empirical study of clinical phenomena alone; a clear understanding of the underlying principles involved is essential to a rational use of methods based upon them, and is necessary to their successful application. It is true that our knowledge of the principles underlying tooth-bleaching processes, as well as the conditions to be met, is meagre and imperfect, and still needs thorough investigation. Yet there is enough to serve as the basis of study, and it is with the hope that I may be able to give direction to your thought in this matter that I have chosen this topic for consideration. It is at once evident that we are confronted with a chemical problem, for in the successful application of a tooth bleaching agent we have wrought an important change in the matter causing the discolouration, so that it has lost its colour quality and become white. Any change which affects the composition of matter so that its identity as such is destroyed is a chemical change. Our problem then is one of chemical reaction between a so-called bleaching agent and the colouring matter lodged within the dentinal tubules which shall so alter the composition of the latter as to render it colourless. A bleaching agent is any agent capable of affecting that result. We may next consider the nature of the colouring matter, and afterward the means by which its colour factor is destroyed.

Tooth-discolouration may arise from many causes, but for our purpose this evening we will consider only the most common one,—viz., that following death of the pulp and in which the source of discoloration is the hæmoglobin of the blood. Hæmoglobin is a complex proteid compound contained in the red blood-corpuscles. Traumatic causes, intense and sudden congestion of the pulp due to irritants, especially of arsenious acid or strangulation of the pulp, may cause a rupture of the stroma of the corpuscles, liberating their contained hæmoglobin and its diffusion into the tubular structure of the dentine. The result is that the tooth becomes pink.

The difference in appearance between blood containing unruptured corpuscles and that in which the hæmoglobin has been liberated is quite marked, and is clearly seen in the two flasks before you. One contains simply defibrinated blood, the other defibrinated blood which has been agitated with a small amount of ether. The latter, when viewed even in thin layers by transmitted light, presents the appearance of a homogeneous solution of hæmoglobin in serum, while the former, in thin strata, presents the characteristic cloudy, granular appearance due to the presence of the unbroken corpuscles.

We may now test the reaction of our hæmoglobin solution with hydrogen dioxide by staining a sheet of white blotting-paper with the hæmoglobin and then applying the dioxide, and, as you see, the colour is rapidly discharged, from which we infer correctly that in the very first stage of tooth-discolouration,—viz., the pink stage,—the colour is readily discharged by pyrozone.

The pink stage, however, rapidly passes and gives place to a brown discolouration, or at least some modification of a brown tint, varying in intensity with the amount of hæmoglobin originally present. The change from the pink to the brown tint is due to a chemical alteration in the hæmoglobin, which consists of its splitting up into hæmatin and globulin. This change takes place more or less rapidly and spontaneously within the tooth-structure. We can bring about the same result experimentally by the application of any acid to the hæmoglobin stain on our blotting paper, and by touching the stain with dilute hydrochloric acid you see the bright red colour is instantly changed into brown. Upon making an application of pyrozone as before we find that the brown stain remains unaffected, and we infer that the brown stage of tooth-discolouration is relatively more resistent of bleaching by pyrozone than is the pink, an inference supported by clinical observation. The tooth under ordinary circumstances passes through colour changes beyond the brown stage into a bluish or gray or nearly black colour, and these changes in colour are due to the progressive breaking down of the hæmoglobin until the compound is reduced to its lowest terms. The final black or dark colour is permanent, and is due to the formation of an unalterable compound of iron probably with sulphur, the iron being one of the original constituents of the hæmoglobin and the element to which its various colour manifestations are due. The sulphur which enters into the formation of the permanent final stain is derived from the protoplasmic element of the cellular structures of the pulp.

The resistance of the brown discolouration of hæmatin to pyrozone and other bleaching agents in greater or less degree renders the restoration of teeth so discoloured often quite difficult. I have found, however, that the brown discolouration may be successfully removed by the prolonged action of either sodium or hydrogen dioxide followed by an application of strong oxalic acid. The rationale of the process is based upon, first, the existence of iron as a constituent of hæmatin, and a formation of soluble and practically colourless salt of iron with oxalic acid.

The permanence of the bleaching process is directly related to the existence of iron as an element in the original colouring matter of the tooth, and which must either be finally got rid of or else so fixed by the application of certain agents that it cannot form new and coloured compounds, if a permanent result is to be hoped for.

That iron is one of the elements of the hæmoglobin stain is easily demonstrated, and that it is not removed by pyrozone, but simply changed into a colourless combination, will be seen by applying the usual reagents for the detection of iron to the bleached stain on the paper before you, and there are at once shown the characteristic reactions of iron to potassium sulphocyanide, potassium ferrocyanide, and to ammonia sulphide. Teeth in the early stages of discolouration and which contain coagulable matter in the tubuli should be treated to an application of strong zinc chloride immediately after the bleaching by pyrozone, in order to coagulate and fix the white compound unalterably, or, what is better, should be treated with a strong alkali,—e.g., sodium dioxide or Schreier's preparation,—with a view to dissolving and eliminating the contained organic matter, aided by a thorough irrigation by hot distilled water. Where coagulable matter is not present resort must be had to a resinous solution, applied to the desiccated tooth until the dentine is saturated as fully as possible.—*Dental Cosmos.*

# TREATMENT OF PULPLESS AND ULCERATED TEETH.

By Dr. A. P. Burkhart, of Buffalo, N.Y.

Some time during the year 1897 I began to use hot water quite freely in cleansing teeth, by injecting the hot water with syringe with considerable force into the tooth, preparatory to the usual adjustment of rubber-dam over the offending tooth, drying and dressing the same with various medicaments in general use. I next employed listerine in connection with the water, and obtained surprisingly good results, far in advance of the simple use of hot water. The hot water and listerine I used up to five months ago, when I discarded listerine and used in its place Borothymol.

It matters not whether the gum is swollen over the offending tooth, with or without fistulous opening, or if there is no swelling at all; first of all carefully open well into the pulp-chamber, avoiding the forcing of *debris* into canal or canals. Remove as near as possible all decayed matter in crown with burs and excavators, and make a good-sized opening in the direction of the pulp-chamber. Wash out tooth with tepid water. Having carefully cleansed the crown and secured a clear opening into the pulp-chamber, next with the best broaches (I prefer Donaldson's) open the canal and canals, and remove dead and septic matter, and by all means if possible secure an opening through the root with broach. With patience, care, and skilful hand you can in nearly every instance get an opening through the incisors, cuspids, bicuspids, and large canals in molars without wounding the parts beyond. I do not drill out root-canals; I used to do so, but do not any more. Having carefully with broaches cleansed the root-canals, not forgetting of course to do your best even in small canals found in molars, next begin treatment with hot water and Borothymol. Place in a tumbler two tablespoonfuls of Borothymol, and fill tumbler with hot water. When I say hot water I mean hot, and not warm or tepid. Now fill your syringe with the hot liquid, and wash out the cavities by shooting water against the inner wall of the tooth, to wash out all *debris* in the cavity, and, all having been removed, do the work of throwing the hot liquid into the root-canals. Every now and then pass your broach into the canals to keep them well opened. Use from one to two tumblers of the liquid as prescribed, and, remember, keep it just as hot as the patient will possibly stand it. In the six upper anterior teeth, while injecting same, place the fingers of the left hand, hand backward, into the mouth, which will allow the hot liquid to rebound from the tooth against the inside of the fingers, thus preventing liquid from being thrown upon the face and clothing of the patient, and by this method the heat of the liquid is reduced and made more comfortable for the patient's mouth. Having used Borothymol and hot water as directed, next adjust the rubber-dam, dry cavity and roots with cotton or any other substance, load the cavity and roots with pure alcohol, then force hot air into the tooth persistently and well, give it a second dose, and follow with hot air. Having thoroughly done the work thus far, and the tooth being now well dried, next saturate the cavity and root-canals with a preparation known as Dr. Frank E. Howard's Antiseptic, of which the following is a formula kindly furnished me by Dr. Howard :

Acid carbolic crystals, ʒiv.
Oil cassia, ʒi.
Oil cloves, ʒi.
Thymol, ʒii.
Glycerol, ʒi.
Acid tannic, scr. i.

Having saturated the root-canals thoroughly, I again use the hot air carefully by forcing same into the canals until the liquid has been well forced into the tubuli of the tooth. I next dress the roots lightly with cotton dipped in the liquid just used. Do not pack cotton very tight. Next close upper portion of cavity with a piece of cotton saturated with sandarac varnish. Do not crowd this packing too tightly into the cavity. In about three days have patient return, adjust rubber-dam, remove packing and dressing, and with hot air thoroughly dry the roots, redressing with cotton saturated in the Howard antiseptic. At this sitting pack the cotton a little closer than was done at the first sitting, and then seal cavity with temporary stopping of gutta-percha. In about a week I have the patient return, and I again adjust the rubber, remove the gutta-percha and root-dressing, dry the roots carefully, and fill same with chloro-percha. If the tooth is to be filled with plastics I complete the operation at once, but if it is to be filled with gold I place a temporary stopping in the cavity for a time.

I have had wonderful results in following the methods just described, and I am sure my professional brethren will meet with equal success if they will follow my methods with care and, above all, thoroughness of detail. During the past five months I have treated dozens of dead teeth in all stages of disease and inflammatory conditions, and in all the cases treated I have had but four where I failed to give relief, and no continued pain remained or swelling ensued after the first dressing. In the four cases mentioned I hold myself responsible for having at the first sitting sealed the cavity with gutta-percha instead of cotton and sandarac varnish, and the remaining two I believe I packed the cavity, particularly the pulp-chamber, too tightly with cotton and sandarac. I believe there is a decided advantage in the use of cotton and sandarac as a stopping in the first sitting, because of its porous condition, it acting as a vent. Possibly I may be wrong in the line of treatment I have suggested, and my success may be mere good luck, but I think not.—*Dental Cosmos.*

## EMPYEMA OF THE ANTRUM.

Douglas reports in the Australasian *Medical Gazette* a case of empyema of the antrum in a child three weeks old. An opening was made inside the mouth, external to the alveolus, and the cavity washed out and drained. No cause could be discovered except that for the first week after birth the mother's nipples were sore and discharged "matter." The symptoms in the child appeared in a fortnight, and the nurse applied lotions. After opening the cavity, the child recovered.

# A METHOD OF ADMINISTERING NITROUS OXIDE GAS FOR THE PRODUCTION OF ANÆSTHESIA, AVOIDING THE USE OF A CLOSED MASK OR OF VALVES.

By George Flux, M.D., Brux.,
Anæsthetist to the Great Northern Central Hospital and to the British Lying-in Hospital; Assistant Anæsthetist to the Dental Hospital of London; late Anæsthetist to the National Dental Hospital.

It is usually regarded as an accepted fact that the special aim in giving nitrous oxide gas should at first be to exclude air and that in order to achieve this the patient's face must be enclosed in an accurately fitting mask so constructed that respiration can only be carried on through valves and under pressures differing from that of the normal atmosphere. Experience has shown that to get good results with nitrous oxide gas a sufficient sufficient supply of oxygen must be provided by nature or art. The old "laughing gas" was impure and when mixed with oxygen produced great excitement; the modern gas, being pure, when mixed with oxygen rarely produces much undue excitement, so that the objection to mixing it with air no longer holds good.

I have found that pure nitrous oxide gas administered in the following manner produces most excellent results. The patient being seated in a chair with the head slightly thrown back, a napkin folded to a width corresponding to the height of his face is passed round his head and lightly secured in such a manner that, while the lower border of the napkin is in contact with the chin and lower part of the face, the upper border at a level with the patient's eyes bulges forwards eral inches so that a cup-like cavity, open at the top and closed at the bottom, is formed. The patient is now ready to receive the gas. The gas is supplied by merely holding the end of the supply pipe over the cup like cavity, the amount being regulated by a stopcock; the gas by its own weight falls into the cavity, and is thus easily inspired at the normal atmospheric pressure and thoroughly mixed with as much air as the patient requires. At each expiration the patient blows the face-piece nearly empty, and on inspiration breathes both fresh air and fresh gas; it is only necessary to turn on fresh gas when inspiration occurs. I find that from eight to ten gallons of gas are used for a single administration, but with a less porous and a better-fitting face-piece than a folded napkin the consumption should be considerably less.

So far my operations in this direction have been conducted without any specially constructed apparatus, but now that I am convinced of the practicability of the method I am having one made; it consists of a cup-shaped face-piece completely open at the top with a suitable stopcock for regulating the supply of gas.

The number of cases in which I have used this method has so far been limited, but in all of them the most striking feature has been the extreme tranquility of the patient, who passes easily by almost imperceptible stages from consciousness to anæsthesia and back again to consciousness and has all the appearance of being merely asleep. The face keeps its colour, the breathing continues gentle, and sleep becomes deeper and deeper till the usual signs of anæsthesia appear, lasting from forty-five to sixty seconds, when the patient quietly wakes up. In none of these early cases has there been any jactitation, stertor, or noise, nor any hurrying of respiration, nor any complaint of the slightest feeling of inconvience to respiration. I have tried this method upon myself and, apart from a sense of drowsiness, I was unaware of any unusual sensation. In addition to the action of the facepiece in conveying the gas to the patient, its being wide open at the top has the great advantage that it enables the whole of the patient's face to be under direct observation and it also adds to his comfort. It allows his respiring under ordinary conditions, thus relieving all sense of oppression; he is free from the transmitted hiss from the gas bottles and from the disturbing bruit of valves, to say nothing of his escaping from the odour which seems inseparable from all ordinary forms of gas apparatus and from the discomfort and risks of breathing into and out of an apparatus which many have used before him.—*The Lancet*.

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Regulation of Teeth.—When the central incisors stand apart, dry the teeth and wrap No. 5 linen thread round them three or four times and tie it. By the next day the shrinkage of the thread will have drawn the teeth together. If necessary retaining band, soldered together, can be afterwards cemented to the teeth.

## PROFESSOR VIRCHOW.

It was a happy inspiration which led the authorities of Charing Cross Hospital to invite Professor Virchow to deliver the Huxley lecture on the occasion of the opening of the medical session. They could not have better honoured the name of the eminent man whose medical education was obtained in their institution than by linking it in this manner with that of the foremost living exponent of pathological science. Huxley, whose life was devoted to the search after truth, whose keen intellect dispersed so many dogmas and illumined the obscure places of biological problems, and whose strenuous and single-minded advocacy did so much to establish the most notable scientific conception of his time; and Virchow, whose name and fame have been known to all the world for more than half a century as those of one who, gifted like Huxley with more than common insight, applied the teachings of biology to the elucidation of morbid processes and effected for pathology as great a change almost as Darwinism did for the science of life,—it is well that these two names should thus be brought into conjunction; whilst on many other grounds there could not be found one better fitted to give such a lecture than Professor Virchow, whose wide knowledge and liberal sympathies entitle him to speak with an almost unique authority on the progress of medical science. For who is there among us who can tell of his own knowledge the wondrous tale which has been unfolded before the eyes of this master during the years in which he has been engaged in scientific investigation? Nor has he been a mere passive onlooker whilst the tide of discovery has been bringing fresh treasures to his feet. All the world knows that had it not been for Professor Virchow pathological science would have remained in a state of crudity and of vague speculation. The fundamental idea of the "cellular pathology" which he promulgated awakened a new interest in, and gave a new meaning to morbid processes. It remains essentially unshaken to the present day, although in matters of detail modifications have been made from time to time, many of these accessions to knowledge having been made by men directly inspired by Professor Virchow himself.

Our position to-day in regard to this question is that it dominates all our views of organic life. We can no more conceive of organised structures, exhibiting vital phenomena, whether the simplest or the most complex, without reference to the "cell" as the unit, than we can conceive of the sun apart from light and heat. Nevertheless, the biologist and the pathologist are bound to confess their inability to solve the whole problem of existence. It was much, very much, to impress on the imagination the fact that the cell is the simplest form in which life is manifested; that the changes wrought in the organism by disease can be referred to changes in which these ultimate living elements take part, but the nature of life itself baffles the keenest intelligence. Professor Virchow alluded to the overthrow of the theory of "free-cell-formation," which, as he said, amounted to a revival of the older doctrine of spontaneous generation. He defined the organism as a "social" not an "individual" mechanism, made up of cells themselves composed of inert chemical substances; but he did not pretend to say—and herein we have the best example of the ignorance of the wisest—to what the cell owes its life. All we do know and all we can say is that since life first appeared on this earth there has been a continuous and unbroken ever-extending chain of living elements derived from pre-existing elements similarly endowed. The application of the doctrine to pathology was, as we have said, Professor Virchow's great service, and nowhere has it been more surely confirmed than in the domain of new growths. It may be that the actual cause of these abnormal and destructive formations will one day be discovered; but whatever it be it cannot upset the certain knowledge which we have of their intimate structure and their origin from pre-existing elements in the body. That the problems of hereditary transmission, whether of actual characteristics or deformities, or of tendencies to disease, are better explained by virtue of the potencies contained within the parent cells than by any fancied changes in the blood or fluids of the body, can hardly be questioned. These fluids are but the media whereby the tissue cells obtain their nutriment and wherein they part with their products. The cells themselves are the active and living entities which exist in the ovum before the formation of blood and lymph and are directly derived from the two sexual elements without the conjunction of which no new element can be built up.

Perhaps the most interesting portion of this lecture—if one part could be said to be of greater interest than another—was the exposition of parasitism and the great extension which has been given to this in the discovery of the minute parasitic agents which excite the infective diseases. Professor Virchow did well to remind us that the reaction of the tissues and organs to the bacterial poisons forms an essential part of these diseases, and he, perhaps wisely, bade us remember that there may be some infections in which bacteria have no share. But to the incalculable gains to humanity arising from the recognition of these agencies he bore ample witness, and instanced the work of Lister and the introduction of serum therapeutics as evidence of this. We must not conclude without expressing our gratification that Professor Virchow should have selected this theme for his address, which is sure to dwell in the memory of the young students who formed the essential part of his audience. Certainly they could have no better examples to follow in the pursuit of medical science than those set by Hvxley and Virchow.—*Lancet.*

## THE PREPARATION OF THE MOUTH FOR A DENTURE.

By Robert H. Nones, D.D.S., Philadelphia.

We must observe carefully the condition of the parts, whether normal or abnormal; discover, if possible, the cause of the abnormal conditions, and remove or treat them. We must give particular attention to the extraction or retention of teeth or roots, and at the same time plan the future denture, mapping out what to make and how to make it.

In the examination of an edentulous mouth notice the general shape, whether it be regular or irregular, the vault high or low, the ridge prominent or flat. Note carefully any hard or bony protuberances in the vault of the palate, as well as an irregularly resorbed ridge of either the upper or low jaw.

If the soft or flabby conditions of the tissues exist, proper relief or pressure must be given. Location of the muscles must be carefully observed, as it is of vital importance to the proper outlining of the plate, attention to which gives comfort to the patient. All these conditions have considerable bearing on the planning of the denture.

Another equally important condition is that of a fissure of the vault, starting in the soft palate and extending at at times quite far into the hard palate. This is often so narrow in appearance as to deceive one as to its depth, except on close examination. These fissures run usually through the centre of the mouth, but may be found double, one on either side of the hard central prominence.

Frequently unsuccessful dentures would have been successful had proper cognizance been taken of this condition. The knowledge of its existence will enable us to avoid a space between the denture and the mouth, and to exclude the air which would otherwise enter.

Inflamed or irritated mouths, referring for the present to edentulous mouths, may result from various causes, both local and systemic.

Dyspepsia plays an important part, and its treatment would naturally be relieved by systemic treatment.

The use of ardent spirituous liquors and of tobacco may also cause conditions of irritability.

The most frequent cause of these inflamed or irritated conditions, and one which should be looked for, is a previously worn denture. How frequently will a patient, when we are about to make an examination, quickly remove from the mouth a denture, and with an expression of shame carefully close it from view in a napkin or in a handkerchief. The cause of the embarassment generally is the filth.

Another cause, less frequent, but not at all infrequent, is the adaptation of foreign substances, such as wax, cotton, and even chewing gum to ill-fitting dentures. In this connection I recall an incident showing apparently how an otherwise cleanly person may be unconscious of the actual condition of the mouth.

A gentleman, about sixty years of age, his general appearance denoting refinement, neatness, and cleanliness, sought my services to have a partial lower metal clasp piece ropaired. One of the natural teeth had become quite loose, and he wished an artificial one attached to the plate in its stead. On examination I noticed it was rather a difficult piece to remove, and told him to remove it, as I wished to save him the inconvenience which is often occasioned by the removal by the dentist of such a piece. I shall never forget his look of mingled surprise and helplessness when he told me it had never been removed from the time it was first inserted, some five years previously.

I removed the piece with some difficulty, making no effort to hurry it past his nostrils during the withdrawal from the mouth, which caused him, as I had anticipated, to withdraw his head. It was foul enough and covered with calculus and debris. The discomfiture of the patient was marked, and not at all feigned. He informed me that he always believed himself to be cleanly, and his mortification was intense.

While we should naturally expect human beings to be cleaner in the mouth than any other part, it is our duty always to instruct them in regard to the proper care and removal of dentures.

Frequently we find the mouth irritated from roughness on the plate. In some cases there are prominences on so-called temporary plates which were formerly seated in tooth-sockets, in other cases sharp, rough, angularly outlined, and deep vacuum-chambers, or perhaps too highly outlined margins which impinge on the muscles and mucous membrane, cutting them and creating irritable wounds, especially in lower dentures. How can we expect success to follow the making of a denture on such faulty foundations.

The treatment in such cases is simple. First comes the removal of the cause. If the denture be a metal one, carefully boil it in a dilute solution of sulphuric acid; on removal, allow it to cool, then wash with soap and water, and place in a solution of soda, thus neutralizing any acid beneath the teeth, after which any roughness should be removed and sharp or rough edges of vacuum-chamber dressed down and smoothed. The plate should then be brushed with a stiff lathe-brush and pumice, then polished and carefully washed.

The treatment of a vulcanite denture is the same, with the exception that it is allowed to stand in a cool solution of hydrogen dioxide in place of warm sulphuric acid.

Small pin-point prominences may be looked for, caused by the vulcanite forcing into the pores or small bubble-like places on the surface of the plaster, these are frequently a source of great irritation and annoyance to a patient, and they can be largely avoided by using a tin model instead of a plaster one. When they exist in a plate they should be removed.

The denture after proper treatment, providing it fits well and is not likely to cause further irritation, may be worn till the mouth is in condition for the impression, otherwise its use must be discontinued

The medicinal treatment of the effects produced by the roughness consists in the application of antiseptic mouth-washes, such as "listerine," "borine," etc. The most effectual and quickest treatment I have found is the painting of the inflamed parts with tincture of iodine, together with the frequent use of a 3 per cent. solution of hydrogen dioxide by the patient as a mouth-wash.

During the examination of the mouth not infrequently will be found prominent points of the alveolar process, due to uneven resorption after the extraction of the teeth. These should be removed.

The attachment of the frenum of the lip to the alveolar process frequently being very low, it may interfere with the upper margin of the denture, or we may find what is known as a double lip or a false lip, which is caused by an ill-fitting plate or one extending too high. Sometimes this extends below the natural lip. These with the excessively flabby conditions may receive surgical treatment.

What is of less frequent occurrence is the prominence of the alveolar process. I recall one which I was fortunate enough to see both before and after operation for its reduction. This was performed by Dr. M. H. Cryer. Any one on looking at the patient with her lips closed, which was a difficult act for her to do, would have concluded that her dentist had made a grave mistake in the fulness of her denture. Dr. Cryer removed about a quarter of an inch of the labial and buccal process, thus placing the mouth in a fit condition for an artificial denture.

Should the mouth not be an edentulous one, we may look for other causes of irritation.

One, and an important one, is salivary calculus, an irritant which should generally be removed. I have been very successful with the use of iodine in connection with the ordinary scaling method, which I follow up with and have the patient use freely the hydrogen dioxide.

In mouths containing some natural teeth we will frequently find partial dentures creating irritation of the gums about the necks of the teeth. A sinking in of the plate and a bulging out of the gum around and between the teeth and plate is caused most frequently by the plate not fitting accurately to the natural teeth.

The extraction or retention of teeth or roots depends on the advantages to be gained. When they cannot be made healthy they are to be extracted. To make a broad assertion, they are not to be extracted unless positively detrimental to the health of the patient and to the success of the denture.

We must remember that an artificial tooth is not generally as valuable as the natural organ. No tooth is to be extracted merely to facilitate the taking of an impression or the making of a denture. We should adapt ourselves to proper circumstances rather than adapt the circumstances to ourselves.

If all the four upper incisors are in place, they should be retained, other conditions permitting; as the cuspids can be artistically matched to them.

The cuspids should be kept whenever it is possible; even the roots should be preserved and crowned, as they not only retain that facial expression which it is almost impossible to regain with an artificial denture, but they also guide and stay the bite.

They should be extracted, however, when they cannot be brought to a healthy condition, or when so abnormally situated as to interfere with proper adjustment of a denture, as, for instance, when interfering with the bite or protruding to such a degree as to cause disfigurement, or if dropping inward, especially if occluding inside of the lower teeth; or if there be excessive recession of the gum, or a tilting from or toward the median line, thus making it impossible to properly adjust artificial teeth between the natural teeth; or if out of line from or toward the centre, not allowing sufficient space for the proper size or number of teeth; or if elongated, giving a marked canine expression to the face.

Bicuspids, except when on both sides of the mouth and useful as clasp attachments, should be extracted.

Molars should be retained whenever possible, as they afford a means of support by clasping in mouth, which are difficult to fit with vacuum plates. The roots should be preserved and crowned for clasp attachment.

In the lower jaw none of the teeth should be extracted when it is possible to retain them, with possibly the exception of a single central or lateral or laterals in pairs.

The other teeth afford a means of support for a denture till the patient may become accustomed to its management.

In extraction all sharp prominences of the alveolar process should be removed, thus permitting a smooth, even resorption.—*International Dental Journal.*

## CAUSES OF FAILURES IN OPERATIVE DENTISTRY.

1. Dull burs, excavators and chisels.
2. Imperfectly-prepared margins.
3. Fillings in too close proximity to the pulp.
4. Wrong choice of material, either to gratify the whim of patient, or in using plastics from a desire to complete the work in less time, when gold would have been best; or in the use of gold for the sake of a larger fee, when cement or amalgam would have been better for the tooth.
5. Failure to thoroughly remove all salivary calculus.

*Rule first.* Examine the mouth.
*Second.* Clean the teeth.
*Third:* Other necessary treatment.
*Fourth.* Fillings.

Impress on patients the lesson of cleanliness in the mouth as well as of the body, then we will have fewer failures in operative dentistry.—*From paper by Dr. L. F. Fruik, Lake City, Fla.—Dental Brief.*

## THE EFFECT OF MIXED DIETS ON SALIVARY DIGESTION.

Dr. W. Aitchison Robertson recently read a paper on the Effect of Mixed Diets on Salivary Digestion. The research was made with the object of determining whether the digestion of starch was affected favourably or unfavourably by its admixture with other articles of food. He found that porridge formed a fairly easily digested article of food, and that the greater the dilution of the porridge with water or with milk the greater was its ease of digestion. In fact, well-made water-gruel was one of the most easily digested of foods. The reason why potatoes were so often badly borne by the stomach was probably due to the manner in which they were prepared. If after being boiled they were finely powdered, so that the saliva could gain ready access to the starch granules, they were easily and rapidly digested. On the other hand, when potatoes were sent to the table whole, the probability was that they would be imperfectly masticated and swallowed in fragments of greater or less size. In such a case the saliva could only act on the outer surfaces of the fragments, and the result was a very imperfect digestion. In respect of the digestion of bread, the experiments showed that it was much less acted upon by saliva when eaten alone than when taken along with some indifferent fluid as water. Newly baked bread was not so rapidly acted upon by saliva as stale bread, but the ultimate degree of starch conversion was greater in the former than in the latter. So far as the experiments showed, stale bread was not more easily digested than newly baked bread. The addition of milk to bread caused a remarkable enfeeblement of the salivary ferment, while broth exerted a slight restraining influence upon it. Alcohol, even in solution, retarded salivary digestion of starch, but the action was much less marked than in the case of infusion of tea. Wines had a very marked inhibitory influence on the digestion of starch by saliva, and this was almost wholly due to their acidity. Even after three hours' digestion in the presence of sherry, port, or claret, the starch had undergone hardly any conversion.—*The British Medical Journal.*

## FLOSS SILK.

How often writers and speakers fail to mention floss silk as a means of dental prophylaxis. The tooth-brush is stressed, even to the number and shape of the rows of bristles ; while the floss silk, which is far more important, is not mentioned, or if mentioned, only in a casual way.

Instructions at the chair are given in the use of the brush, which is well, but the silk should receive the same attention. Really, if one is to be neglected let it be the brush, which does not reach the seat of nine-tenths of the decayed places, however faithful and careful it is used. Impress on the patient the importance of keeping accumulation from between the teeth, where most caries are found. We have been for years using the Corticelli embroidery silk, found at dry goods stores on small spools of about two and one-half yards each, and which sell for one cent. We use this waxed, at the chair, and present a spool with instructions how to use, and to wax to each patient. So long and persistently have we urged this in our practice that patients say they feel uncomfortable if their teeth are not "cleaned between." Especially should patients for whom approximal fillings have been made be urged to keep them clean between. Tell them teeth cannot be made better than they were before they decayed, and if the same conditions are allowed to exist after they are filled that existed before, decay will surely recur around the fillings.

With many, if this is shown in the light of dollars and cents, it is more impressive. But with most intelligent people there is a desire to keep the teeth clean, and they only need to be given the proper directions for doing so, and will do it gladly.—*Dental Review.*

## FOREIGN DEGREES.

Mr. J. W. Sidebotham, M.P. for the Hyde division of Cheshire, has introduced a Bill into the House of Commons which was read a first time the other day. The Bill, which is a short one of five clauses, makes it compulsory for every person who attaches to his name the degree of Bachelor, Master or Doctor in any faculty in which degrees are granted —unless such degree has been received from a British university or from any authority in the United Kingdom which confers degrees by virtue of a Royal charter or by the sanction of the Crown or of Parliament—to clearly indicate the source from which such degree has been received under a penalty of forty shillings and costs. The term "degree" shall mean and include any letters or abbreviations which are commonly used to signify the degree of Bachelor, Master or Doctor of any Faculty in which degrees are granted. This Bill is evidently drawn on the same lines as the Medical Act —i.e., to enable persons to distinguish between true and false degrees. It is good as far as it goes, but it does not go far enough. The gentleman who calls himself M.D., U.S.A., or D.D. of the National University of Chicago, will still continue to deceive the ignorant and foolish, neither, so far as we can see, will it affect the ingenious persons who put M.B. after their names and when challenged say they do not mean that they are Bachelors of Medicine but only Medical Botanists. If a "degree" is received from no source at all it is impossible to indicate a source. However, the Bill is a step in the right direction.

# Dental News.

## ACTION BY A DENTIST TO RECOVER FEE.

The case of Richardson v. Freeman came before his Honour Judge Lumley Smith, Q.C., in the Westminster County Court, which was an action to recover £13, balance of account for stopping five teeth of Miss Freeman, the daughter of the defendant.

Plaintiff carries on business in Brook-street. When the young lady came to him it was arranged that the payment should be by time, and at the rate of a guinea each half-hour. There were twenty-eight half-hours, and he sent a diagram to the defendant.

His Honour: This is very much like a picture out of Euclid. (Laughter.)

Plaintiff (who is an American) said that there were fourteen separate half-hours spent on one tooth.

His Honour: Do you mean to say that it takes fourteen half-hours to stop a tooth?

Plaintiff: My dear sir, sometimes it takes a whole week. Surgeons all charge by time.

His Honour: You do not mean to say that all surgeons charge by time?

Plaintiff: All dental surgeons.

His Honour pointed out that a celebrated surgeon cut off a leg, and charged 100 guineas, and it was remarked upon the short time he took, and he replied, "My dear sir, I could have taken an hour. A surgeon minimises time."

Plaintiff: Sometimes they take a whole day.

His Honour: Yes, because you have to stop and read the newspaper. That is my experience. At the outside there were only seven teeth stopped. What did you stop them with?

Plaintiff: It is not a matter of filling, sir. He then went on to explain in technical language what was done to the teeth. He had often three operators at one time on a tooth.

His Honour (in surprise): How can three people get at one tooth at one time?

Plaintiff said the surgeon placed the gold, one of the others fixed it in the tooth, and the other tapped it.

His Honour: I have heard of two men to one spade, but three men to one tooth never. (Laughter). It works out at £6 a tooth, doesn't it?

Plaintiff: That is a serious way of looking at it. I never charge less than twenty guineas for an operation like this.

His Honour: What, stopping a tooth?

Mrs. Lillyjoy, nee Freeman, said the arrangement she made was to pay £10, but she did pay £15, and only five teeth had been treated altogether.

His Honour gave judgment for the defendant, with costs, being of opinion that the amount paid, £15, was enough.—*Daily Telegraph.*

## DENTIST AND MALE SERVANTS' LICENSE.

Alfred E. Benington Crosby, dentist, of King's Road, Chelsea, was summoned for keeping a male servant without a license.

Mr. Hawkins, who prosecuted, said a young man employed by defendant, who had been seen to clean the door-plate and to answer the door, came within the designation of house-porter, footman, or page enumerated in the list of servants for which a license must be taken out.

Mr. Shiel remarked that the list was certainly extensive—it included a master of the horse and a *maitre* at an hotel.

Mr. Bowles, of the Inland Revenue, deposed that when he rang the patient's bell at defendant's house it was answered by the young man in Mr. Crosby's service.

Mr. R. M. Stephenson, for the defendant, complained that the summons was taken out without any invitation for an explanation. The young man clearly came within the exemption of Vict. 39, Chap. 6, his primary occupation being that of a mechanical dentist. The Act quoted was passed expressly to meet a case like this, of a young man learning a trade, being otherwise partially employed.

Edward Viner deposed he was not apprenticed to the defendant, but only received 7s. 6d. a week because he was being taught the trade of a dentist's mechanic. He worked on plaster casts, polishing, etc., as well as sweeping and dusting out the surgery and attending to the door.

Mr. Shiel said that he should hold that it was a case for exemption, and dismiss the summons.

Mr. Stephenson: I ask for costs.

Mr. Shiel: I shall certainly not grant costs. It is a very proper case for enquiry, and I may tell you that I think it is very near the line.

## CLAIM BY A DENTIST'S APPRENTICE FOR RETURN OF PREMIUM.

An action was heard in the District Court before Judge Backhouse in which the plaintiff was Charles Kynaston Smith, dentist's apprentice, of Wigram-road, Glebe, and the defendant Frederick George Hollway, dentist, of Elizabeth Street, Sydney.

The claim was for the recovery of £100 as a refund of portion of the premium paid by the plaintiff to defendant, and for an alleged breach of the indentures. Plaintiff set out that he became indentured to the defendant in February, 1896, for a term of three years, and that the defendant had failed to impart the instruction agreed upon. Defendant paid £4 3s. 6d, into court in satisfaction of the claim, admitting that £4 was due for salary.

Af-er hearing a number of expert witnesses, his Honour returned a verdict for the defendant. It was obvious, he said, that the reason why the plaintiff did not receive the full benefit of the defendant's instruction was that the plaintiff had been subject to illness.

## APPOINTMENT.

Dencer Whittles, L.D.S.Eng., Dental Surgeon to the General Hospital, Birmingham.

# Dental Hospital Report.

Work done at the Victoria Dental Hospital of Manchester during the month of September, 1898.

| | |
|---|---|
| Number of Patients attended . | 964 |
| Number of Extractions . . | 547 |
| Number of Extractions under Anæsthetics . | 371 |
| Gold Stoppings . . . | 54 |
| Other Stoppings . . . | 161 |
| Miscellaneous {advice, temporary fillings, scalings, dressings, &c. . . | 211 |
| Gold and Porcelain Crowns . . | 10 |
| Inlays . . . | 0 |
| Total . . . | 2318 |

W. H. Jones, L.D.S.Eng., *House Dental Surgeon.*

# To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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# GAS AND ETHER.*

By Dr. Guy.

The subject of a general anæsthesia is one which necessarily has for us a vital and personal interest. We are most of us in the daily habit of administering, or operating under, an anæsthetic, and it frequently happens that the choice of an anæsthetic by patient, or administrator, or both, is determined by the preference indicated by the operator. With regard to the extraction of single teeth, or of as many as the operator judges he can remove during a period of not more than 40 seconds, we shall find absolute unanimity—one and all of us will declare for gas, alone or in combination with oxygen. But when the operation is one which certainly cannot be accomplished in the short time afforded by gas, the dentist becomes an object lesson in the influence of environment on the individual. The Caledonian, with whom familiarity has bred contempt of danger, will elect light-heartedly for chloroform; the Southron, with the fear of Coroner's inquest before his eyes, will as certainly choose ether, or gas and ether. I have at the present time no desire to raise a discussion on the relative merits or demerits of these re-agents; but in recounting the considerations which weighed with me personally and induced to cast my vote in favour of gas and ether as combining the maximum of safety to the patient with a sufficiently long period of available anæsthesia, I must perforce refer to a few facts and figures bearing on this most important and thorny question. Sir B. W. Richardson, after prolonged and laborious investigation, tabulated the fatalities thus ;—

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* A paper read before the Odonto-Chirugical Society.

| | | | |
|---|---|---|---|
| Chloroform ... | 1 death in | 2,500 | administrations. |
| Ether ... | 1 ,, | 23,000 | ,, |
| Nitrous Oxide... | 1 ,, | 75,000 | ,, |

These figures have been generally accepted, although, in the light of later statistics, it would seem that the death-rate given for chloroform and nitrous oxide is rather too high, and for ether rather too low.

But all the figures hitherto put before us undoubtedly show that chloroform is at least 5 times as dangerous as ether ; while the risk with nitrous oxide, in experienced hands, is infinitesimal. Furthermore, the death-roll of chloroform is an annually increasing one. In 1894 there were reported in the United Kingdom 47 deaths from chloroform, 2 from ether, 1 from gas. In the *British Medical Journal*, Dr. Robert Bell, of Glasgow, reports 96 deaths, under anæsthetics, of persons in England alone, on whom inquests were held. His cases are, indeed, collected from reports in daily papers of inquests held, and he considers that they represent but a fraction of the deaths that actually occur. He quotes Professor Augustus Waller as saying :—" A large proportion of the cases of death, undoubtedly caused by chloroform, are never published ; how large a proportion it is impossible to say, yet almost certainly the largest proportion of the total number of deaths. At one hospital, from which two deaths from chloroform were reported during one year, nine deaths actually occurred." Of Dr. Bell's 96 deaths, 88 were from chloroform.

In the *Lancet* Clinical Report on the Hyderabad Commissions on Chloroform, 596 deaths from chloroform are tabulated, with great care and skill. These tables bring us face to face with the appalling fact that the so-called minor operation of tooth extraction was in progress, or had been performed, in no less than 56 of these fatal cases, a number which greatly exceeds that recorded in connection with any other operation, capital or minor, and raises tooth extraction to a bad pre-eminence as the most dangerous operation that can be essayed under chloroform. Consideration of facts such as these cannot but make the dentist perceive the enormous responsibility he incurs when he adopts, or recommends, chloroform in tooth extraction. There is a passage in Richardson's "Vita Medica" which brings this home to one with sledge-hammer force. He says:—

"No man living can be in a more deplorable condition than the man who, talking for the moment to a patient in a friendly and, possibly, assuring way, applies something to the mouth or nose, which the patient breathes, and is silent for ever. A dear old friend of mine, by occupation a dentist—an accomplished man, and a very feeling man, occupying a very good position—one morning experienced the sad fate noticed. A lady drove up to his house to have a tooth extracted: she, full of grace and of beauty, sat down to breathe chloroform, and died before the tooth was touched. The poor dentist could not believe the sight that was before him, and he never got over it; it was ever on his tongue and on his heart, and he became an old man in an hour."

Furthermore, as the deaths from chloroform have increased in number so rapidly since Snow's day, it seems a reasonable deduction that there has been no improvement in methods of administration or in the general standard of skill displayed by administrators. In connection with this last point, an eminent surgeon remarked to me a few days ago on the comparative rarity of skilled anæsthetists, and pointed out as the probable explanation that, whereas a man would need to give chloroform at least 50 or 60 times under supervision before he could be considered competent, not more than two or three clinical clerks in any given ward could obtain that experience in the course of a session.

Early training and a somewhat extended and fortunate experience in the use of chloroform naturally enough tended to predispose me in its favour, but I pondered all these things diligently, and I could see no escape from the logical conclusion that in tooth extraction it was the most dangerous of anæsthetics. As it appeared likely that I should have some 800 operations under anæsthetics to perform yearly at the Royal Infirmary—of which at least 200 would require an anæsthesia longer than I could obtain with gas, I determined, at the beginning of 1896, to cease the use of chloroform in my department, and to substitute for it gas and ether. I have since then recorded in the Hospital Register 410 cases in which the combination has been used, and I propose very briefly to recount the method of administration adopted, the results obtained, and the conclusions I draw therefrom.

I use a Clover's Ether Chamber, interposed between the face-piece and the gas-bag. I began with a face-piece in which I unshipped the inspiratory valve and allowed the patient to expire the first half-dozen breaths of gas through the expiratory valve. I then closed the expiratory valve with my finger, and turned on the ether gradually to 3 on the indicator, so giving a mixture of gas and ether, which the patient breathed backwards and forwards into the bag.

But I had for some time, in giving gas alone, been allowing the patient to breathe it backwards and forwards during the whole administration, and found the resulting anæsthesia to be a very satisfactory one, and unattended by any of the drawbacks usually attributed to that procedure, There was, to be sure, the hygienic objection to allowing a series of patients to breathe from the same bag, but this I endeavoured to overcome, and, I believe, not unsuccessfully, by cleansing the apparatus frequently with carbolic solution—in fact, keeping the whole apparatus pretty well douched, as to its interior, with that most valuable of antiseptics. I therefore dispensed with valves altogether, and allowed re-breathing from the first. I thus diminished the risk of oxygen starvation, for more oxygen is allowed in this manner to remain in the lungs during the inhalation than when the residual air is washed out and escapes through the expiratory valve with the earlier expirations. The mixture required a slightly longer period to produce full anæsthesia; but lividity was less marked, being seldom present to the extent of more than a slight duskiness, and a longer anæsthesia resulted. I now allow the patient to breathe the gas alone for eight breaths or so, and then turn on the ether reservoir, and continue the inhalation for a period which varies much with individuals, but hardly ever exceeds two minutes—70 seconds representing a fair average duration. This, I find, gives me 60 to 70 seconds available for operation; but occasionally the patient remains under much longer, and I have obtained 130 seconds. When I desire a longer period than usual, the face.piece is removed, and an inspiration of air allowed about the middle of the administration. It is, however, essential that the face-piece should be properly adjusted and fit closely to the face, as the continuous inward leakage of air is apt to cause excitement, and impedes the production of the anæsthetic condition.

The records show an average of eight teeth, or roots, removed for each administration; but it must be remembered that it was not unfrequently given in cases where, though only one or two teeth required extraction, they seemed likely to present difficulties. On the other hand, I have often had time to take out upwards of 20, and in one case 27.

Abolition of the conjunctival reflex and dilatation of the pupil were practically constant phenomena. "Trade movements" are by no means rare. Women who work sewing machines performed the appropriate movements, a sailor from Shetland attempted to row the chair away, a cobbler cobbled, while a surgeon commenced to lecture, with characteristic explanatory gesture. The demonstrations occurred in the early stage of the anæsthesia.

The ether, in a few cases, produced a copious secretion of saliva, but no secretion of mucous sufficient to embarrass respiration was observed. One girl was sick as soon as the face-piece was applied (she had just taken a basin of broth); but the same girl returned another day, and had no nausea.

As self-control is little, if at all, practised among the class which furnishes most of the patients to the Infirmary Dental Department, it was not surprising to note occasional manifestations of hysteria on recovery among the female patients, and of the possession of a copious vocabulary of the blasphemous and obscene among the males; like manifestations would doubtless attend any disturbance of the tenor of existence in these individuals.

Two cases of mobile jaw were met with; in one of these dislocation was produced by the insertion of the gag. Patients suffering from a great variety of disease, medical and surgical, took the mixture without observable ill effect. But with one class of patients I have to confess to absolute and complete failure. I refer to the females from the Lock Wards, who resisted the administration, held their breath, were violent and obstreperous, and if they did so far succumb to the influence of the anæsthetic, generally developed tonic muscular spasm, and altogether proved themselves most unsuitable subjects. I am driven to the conclusion that they constitute a class in whom chloroform is indicated.

Patients with pulmonary phthisis took the mixture well, but I never gave it to any patient with bronchitis. Involuntary micturition was noticed in 5 patients, all females. All 5 were seen during the cold weather, and were besides, I think, partly attributable to the patients having come long distances, and waited two or three hours in the waiting rooms, where no facilities are afforded for evacuation of a distended bladder.

Leaving out of account medical students, nurses, officials, and policemen, who were invariably polite, the patients did not appear particularly grateful. Only two gave articulate expression to their gratitude, and one was observed putting something in the contribution box.

For instruments I mainly depended on the upper root forceps and lower hawks-bill root forceps, made by Ash and Co., Nos. 30 and 74 in their catalogue of forceps, rather stouter than usual (in these forceps, when closed, the beaks should meet); and on the pair of elevators I show you. I used Hewitt's gags, aluminium with indiarubber covers.

I am convinced that the substitution of gas and ether for chloroform in dental hospital practice would make for much increase of dexterity in extraction, and this conviction has received ample confirmation in my observation of some of the senior dental students who have attended my department.

I further conclude that chloroform is unnecessary in more than 2 per cent. of cases of tooth extraction requiring a general anæsthetic; of the remainder 28 are suitable for gas and ether, and 70 per cent. for gas alone.

I believe that the operation of "clearing a bad mouth" under chloroform is often attended with after results of a serious or even disasterous nature. I believe it would be very much better for the majority of patients if such operations, instead of being performed at one sitting under chloroform, were done at two sittings, separated by an interval of a week or a fortnight, under gas and ether.

I am satisfied that gas and ether is infinitely more suitable for hospital practice than chloroform, and I am convinced that no practitioner who has given a fair trial to gas and ether will ever return to the indiscriminate use of chloroform.

I desire to thank my friend, Dr. Charles Page, for the valuable assistance he has rendered me during the time over which the present notes extend, both as operator and anæsthetist, and also for the care with which he kept the records of the cases.

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# TREATMENT OF SENSITIVE DENTINE.*

By Mr. H. A. Robertshaw.

The treatment of sensitive dentine is a subject upon which it is difficult to say much without fear of contradiction. What one man believes, another disbelieves, and the opinions I shall lay before you on this subject are those of men well qualified to express an opinion. At the same time I believe with Mr. Whittaker that a dry cavity, sharp excavators and burs, with a liberal application of carbolic, go a long way towards easing, although not altogether doing away with any pain caused whilst preparing a cavity. But whilst believing this, I have endeavoured to give as briefly as possible a list of methods adopted by different operators, and in many cases their methods of using them.

Have your cavity dry. Cut your cavity rapidly, and with sharp excavators and burs. In cutting, cut from within, outwards, or bur slight undercut at the bottom and remove the periphery afterwards. By these means the organic filaments are severed and cannot conduct sensation from the outer portions to the pulp.

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* Read before the Students' Society, Victoria Dental Hospital, Manchester.

Preference should be given to motor power before foot power, as the latter is surging, whilst the former gives steadiness.

Topical applications I shall divide into four classes.

1st. Those which do not endanger the vitality of the dental pulp, viz., chalk and bicarbonate of soda used where moisture cannot be excluded, as they require moisture to produce effect. *Aqua Ammonia fortior*, the objections to which are its pungent odour, irritant effect on soft tissues, and its liability to weaken with age; it should be used in dry cavities. *Nitric acid* is efficacious in dry cavities of hard teeth, and accurately applied to sentient point on a gold probe, guarding the surrounding tissues, it eats out the cavity, and should be neutralised with bicarbonate of soda. *Cocaine* should be used in crystal form only, by placing a minute quantity into the cavity, which is slightly moistened with oil of cloves. Solutions are of little avail.

*Oil of Cloves and Eugenol* are used in sensitive cavities where teeth require wedging. Placed on the cotton wedge, they also obtund the gum while pressing aside.

2nd. Remedies which may possibly endanger the pulp viz.:—

Creasote, carbolic acid, carbonate of potassium, caustic potash, and chloride of zinc.

3rd. Remedies which are liable to injure the pulp, viz.—

Chromic acid, phosphoric acid, and ethylate of sodium.

*Phosphoric acid*, in my opinion, should not be used, owing to its inferred devitalizing action upon the pulp.

*Chloride of Zinc* is a detergent, tonic, astringent, irritant, and escharotic, and the proper form to use it as an obtundent of sensitive dentine is deliquesced, because no action will take place unless deliquesced, and further dilution renders it irritant instead of escharotic. To produce the greatest effect the cavity should be dry, and it should be applied from a probe, pointed stick, pellet of cotton, or bibulous paper, or by oxychloride filling. I do not, however, recommend chloride of zinc as an obtundent. As a rule it gives a lot of pain, and often causes irritation of the pulp, but if used it must be neutralized by washing the cavity with tepid water, then dry thoroughly, then moisten the dentine with oil of cloves and dry again.

*Carbonate of Potassium* is applied from a probe, sharp pointed stick or pellet of cotton; the effects and symptoms are similar to those produced by chloride of zinc, but much less severe. It is by some men considered safe.

*Chromic Acid* is dangerous, and should not be used in difficult places. Both this and ethylate of sodium produce unmanageable ulcerations and sloughing sores, and the latter is an obsolete remedy.

4th. Those which are dangerous to pulps, viz.:—Arsenic, White Oxide of Arsenic, and Arsenious Acid.

*Arsenious Acid* should never be used, as sooner or later it will probably devitalize the pulp.

After writing the above I found on reading Mr. Tomes' "Dental Surgery," that he recommends the use of zinc chloride. He says that the application causes severe burning or aching pain for a few minutes, but after this has passed away little tenderness remains, and there is little danger to the pulp. I have personally tried this as an obtundent with unsatisfactory results. It gave a cold steadily increasing and steadily diminishing pain, for about ten minutes this pain continued, and later on the patient complained of a throbbing sensation. I syringed the cavity with tepid water, and applied oil of cloves; although the patient is having no pain at present, I cannot feel certain that it will not return.

Finally, there is but one thing of importance to mention as an obtundent, that of cataphoresis. The opinions on this are so varied that I prefer not to go into it. I believe all are agreed that the results are good, but that the time occupied is too great for it to be of great practical use in one's surgery.

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## A METHOD OF CROWNING BROKEN-DOWN TEETH.

By C. J. Hand, D.D.S., Romeo, Mich.

In crowning badly broken-down teeth, or where devitalizing the pulp is not expedient, or is objected to by the patient, as in short laterals or denuded teeth, I have found the following a good plan: After trimming, so that band can be accurately fitted, make a band of thin platinum, to cover all exposed portions of tooth, and solder with pure gold. (Of course, it is supposed that the labial wall has been bevelled as much as possible, to permit the facing being brought in line with the adjoining teeth.) Instead of using a thin facing, secure a Bonwill crown, one that will nicely fit the space, and grind out the lingual portion, leaving the sides intact. Grind until the tooth can be placed over the platinum cap in proper position. It can now be waxed to the cap, invested, and body added to restore form, or better still, a little body mixed thin and placed on the porcelain and platinum cap, gradually raising the heat until fused. This method not only saves time, but prevents the investment absorbing the water in body and causing a porous bake. The crown is much better than a facing, as it prevents the difference in colour at sides, which it is almost impossible to prevent when body is added to a facing. If care has been used, the crown will go to place accurately and present a very natural appearance.

*Ohio Dental Journal.*

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LONDON, NOVEMBER 1, 1898.

## POSITION AT THE OPERATING CHAIR.

A paper recently read by Dr. Mosher, on the position assumed by dentists when operating, and its influence on their health, gives rise to a few thoughts which ought to be of interest to all of us. The cramped position which we frequently are obliged to assume is apt to compress the vital organs, and, according to Dr. Mosher, to produce a certain amount of deformity and stooping. The "dentist stands much of the time with the weight of his body upon one foot; one arm is supported by the chair, the other is held free, that it may transmit power to the hand, which lightly or forcefully manipulates the instruments by which he performs his important work. In this posture his head is ever seeking a position in which to balance the arm or foot thrown outside the base, that the body may equilibriate; much of the time, however, it is inefficacious, and he is obliged to maintain the body in posture for work by muscle force alone; this causes a good deal of expenditure of vital force. He moreover uses in his work, hour after hour and day after day, the same muscles. His head more or less continually seeks the same position away from its natural place at the summit of the body. His spine makes the same rotary twist until the ligaments used upon the stretch so continually become overstretched, and those used short lose their power to work at greater length, and thus the spinal rotation becomes permanent. One shoulder (more often the left) is held low, while the other is forced upward by the working arm; in time one shoulder becomes permanently low, and the body line from axilla to hip shorter than its fellow; the body also becomes short anteriorly and proportionately lengthened upon its dorsal surface. By this means, the abdominal cylinder is encroached upon by the drooping ribs, and its contents are forced downward into the upturned pelvis. The lung space is diminished and the heart is crowded, while the blood current moves more or less unequally in its more or less interrupted channels. While the body may adjust itself to such changed conditions, we cannot doubt that it suffers loss, both in its symmetry and in its power to resist disease."

Now although we think that an extreme picture is herewith presented as regards rotation of the spines, and obliquity of the shoulders, yet, judging by the number of dentists who are the victims of gastric, pulmonary and liver troubles, we consider that the note of warning sounded in Dr. MOSHER's paper a salutary one. Our profession is a very sedentary—or rather stationary—one, and when to this is superimposed a stooping and cramped attitude, one can hardly wonder that the system frequently complains and sometimes breaks down, especially when we add the nervous strain attendant on the task of working on highly sensitive material. In the good old days when dentistry was simply extraction and mechanical work this was not so much felt, but in the present time when the retention of the natural teeth has come to be the chief aim of the dentist, much more is taken out of his stock of vital energy. Although one authority gives the average of active professional life of the dentist as twenty-five years, another has found, after consulting obituary notices of dentists, that their average life is sixty-two years which ought to give the average of professional life as about forty years, which is much more comfortable. Perhaps the truth lies between the two figures.

The duty of keeping ourselves healthy is one to which we ought to attend for the sake of ourselves, our patients, and those depending upon us. Our attitude at the chair side ought to be as erect and unconstrained as possible, and in these days of improved chairs this ought not to be as difficult as in the days gone by. If the digestive viscera, lungs and heart are cramped we cannot expect them to do their work properly, and the whole system accordingly suffers. The position of standing behind the patient as much as possible and working by aid of reflection from the mirror should be encouraged. The operator can then stand in a much more upright position, he avoids the breath of his patient, and vice versa, and there is no occasion to lean over his patient, which is always objectionable, especially in the case of females. Although the comfort of our patients should be studied, it is a mistake to give way to them at the expense of our own discomfort. Hats and bonnets should be removed if in the way, and if the comfort of the patient interferes with our own comfort during the operation, the former should be sacrificed in preference to the latter.

Fresh air and exercise are two important friends with which all dentists should keep a close acquaintance. Our rooms should be well ventilated, and we ought to make a rule of reserving a certain time to ourselves for recreation. Once let patients believe they can see their dentist at any time, and liberty is gone, and probably health into the bargain. Violent exercise is a mistake for those who are not accustomed to it, and who are not in their first youth, but moderate exercise in the open air is a prime necessity for us all. Dr. Lauder Brunton has lately belauded lawn tennis above cricket, cycling or golf. It may be the best exercise for bringing every muscle into play, but we think any exercise is good, provided it is carried on in moderation, and brings our vital forces into full activity, and carries our thoughts into a perfectly fresh channel.

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Anti-Toothache Serum !—A German dentist, Dr. Herz, proposes to put microbes into our mouths to steal away our pains. His discovery consists in a serum prepared from microbes he cultivates for the purpose. When applied in the case of a decayed tooth, it is said to stop the pain, but does not destroy the nerve ; further, it again fixes the tooth and makes it possible to put in a lasting stopping. He has already treated a number of cases with it, and they have proved, so he says, most successful. We are afraid our minds are somewhat sceptical concerning Dr. Hertz's discovery.

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A Layman on False Teeth.—A writer in the *Morning* is anxious to inform his readers that false teeth have to be made to suit the complexion if satisfactory results are desired. A dentist, walking with the writer of the article in a fashionable street in London a few days ago, called attention to the fact as he passed a lady who, in smiling, showed a beautiful set of the whitest teeth. "Those teeth are too white," he said. "She is a blonde, and ought to have bluish-white teeth. A brunette can wear clear white teeth, but blondes should have bluish or cream-tinted." Then he mentioned that a friend of his had put in a set of perfectly white teeth for a lady who is very fair. He did it against his own judgment, and only after the lady insisted strongly on it. She wore the set a few days, and went back, saying the teeth were too conspicuous. She took a dark set the second time, and they cannot be told from natural ones. In all, dentists have as many as thirty different shades in false teeth, and have to exercise much care in the selection." He might have added that not only the shade, but the shape, character and arrangement of the teeth should also be studied.

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False Teeth for Paupers.—A short time ago we recorded an instance in which a Board of Guardians "lent" a pauper a set of teeth so long as she remained under their care. Another case came before the Christchurch Board of Guardians. Dr. Mahomed applied on behalf of a young widow resident in his district, who was already being assisted in out-relief, for a contribution from the Board towards the provision of a new set of false teeth, the lady having lost most of her natural molars. The question arose as to whether the provision of these necessary aids to mastication came under the head of surgical appliances, in which case the Guardians of the poor would have been perfectly justified in voting a sum of money towards the purpose asked for, or were a luxury. One or two of the most insistant members agreed that it came under the latter heading, but the worthy medico replied that it would enable the lady to better earn a living, as it would help her properly to masticate her food, and prevent indigestion, and a proposition to provide £2 10s. of the cost was carried by thirteen votes to five. A suggestion was thrown out that it might aid her in finding a second husband, but "perish the thought." It will be amusing to watch whether others will endeavour to avail themselves of the precedent, and what will become of their applications, and, what is more to the point, whether the Government auditor will surcharge the amount in question upon the Guardians when the item is placed before him.

FITTING LOGAN CROWNS.—Dr. Sowle's plan is to grind the root below the level of the gum all around ; enlarge the canal to receive the Logan pin ; insert a temporary pin long enough to reach to the occlusal edges of adjoining teeth : take plaster impression, withdrawing the pin with the plaster. Run Mellotte's metal model and withdraw the pin. Grind the Logan crown to fit this metal model.

RESIGNATION OF MR. TREVES.—Mr. Frederick Treves has resigned the office of surgeon to the London Hospital, which he has held for the past fourteen years, having previously served for five years as Assistant Surgeon. The retirement of Mr. Treves six years before the expiration of his term of office will be a loss to the hospital and medical school in connection with which his early reputation was made ; but we understand that he has found the claims of private practice incompatible with the exacting duties of surgeon to a large hospital. Mr. Treves has always taken great interest in dental surgery, and not long ago distributed the prizes to the students of the National Dental Hospital. His text on that occasion was that the prime necessity of both Surgeon and Dentist was that they should both be good "handicraftsmen."

HUTCHINSONIAN TEETH AS A SIGN OF CONGENITAL SYPHILIS.—Mr. J. Hutchinson, jun., believes that congenital syphilis is frequently overlooked in young adult patients, because too great importance is attached to the presence or absence of the typical malformation of the teeth and of interstitial keratitis. Probably these symptoms were absent in about 50 per cent. of those who had inherited syphilis and who lived to adult age.

A WRINKLE FOR MOTHERS.—Point out to the patient that as the child has *twenty* fingers and toes, so also it has *twenty* deciduous teeth. They will be less likely, when the first permanent molars appear, to mistake them for deciduous teeth and so allow them to decay.

THE CALENDAR OF THE ROYAL COLLEGE OF SURGEONS. —The Annual Calendar has just been published. By it we learn that the Licentiates in Dental Surgery are stated to number 1,283—or an increase of 97 over last year. The Board of Examiners in Dental Surgery, under the old regulations, have held two meetings for the examination of 142 candidates, 100 of whom received the License and 42 were referred. The fees received from candidates amounted to £1,050, of which the examiners received £596 8s. Under the new regulations, in Preliminary Science, one examination has been held, at which two candidates presented themselves, of whom one passed and one was referred. (This examination is identical with Part I. of the First Examination of the Examining Board in England, and is conducted by the Chemistry Examiners appointed under that Board.) The fees received for the examination amounted to £6 6s., of which the Examiners received £1 10s. The receipts from the Fellowship Examinations are £141 less, and those from the Dental £27 more than in the previous year.

GAS WITHOUT A FACE-PIECE.—We published Dr. Flux's letter to the *Lancet* on this subject in our last issue, but seemingly there is nothing new under the sun, for Mr. Tom Bird writes to that Journal: "I shall be very happy to show Dr. Flux my gas apparatus—now, alas, over twenty years old—by which he need not employ any napkin over the face or touch the patient's face with any of the apparatus. I have never suggested this very old method to my colleagues, much less the public, as I do not think the fees admit such a waste of gas. It reminds me of a letter I once received from the late Mr. Clover, who was taken in (by the recommendation of the Committee of the British Medical Association) to use dichloride of ethidene, in which he related that a case had cost him 30s., and that out of a two guinea fee. *Verb sap.*" Dr. Flux has informed us that he does not find the amount of gas consumed greatly in excess of that which is used by the closed face-piece. Perhaps he will reply.

THE ADMIRALTY RULES REGARDING CANDIDATES FOR THE ROYAL NAVY.—The number of teeth requisite to pass the medical examination may be gathered from the following:—Seven teeth defective or deficient in persons under seventeen years of age on the day of entry or ten defective or deficient teeth in persons above the age of seventeen years disqualify. No departure from this rule is permitted without special authority from the Admiralty. Both classes of persons must, however, possess at least four perfectly sound opposing molars—viz., two in each jaw, and the same number of incisors similarly placed. A tooth is to be considered as defective when it cannot be made permanently serviceable by dental repair. In all cases due regard is to be paid to the condition of the remaining teeth and the probability of their lasting for at least twelve years. Credit is to be given for teeth which have not erupted, unerupted wisdom teeth excepted. The standard cannot be considered a high one to start with, and once the youth is admitted, there is no further attention bestowed on him in that particular. We recently had much pleasure in announcing the appointment of a dentist to look after some of the troops in Egypt, and we hope the day is not far distant when the Navy and Army dentist will be as much of an institution as the Doctor.

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THE "SATURDAY REVIEW" AND MEDICAL STUDENTS.—The *Lancet* remarks, "We do not know why the *Saturday Review* should have gone out of the way to indulge in some offensive and insulting remarks regarding medical students as a class, for we do not hesitate to say that the writer's experience in this respect is quite opposed to that of other people who, as far as social position and opportunities for observation and judgment are concerned, are quite as well, and probably much better, qualified to form an opinion. *Apropos* of Mr. G. R. Turner's recent introductory address at St. George's Hospital (in which reference was made to the portraits of medical students in the pages of Dickens and Thackeray as having been drawn from the worst types of a bygone age and in which it was asserted that the behaviour of the London medical students would compare not unfavourably with that of the undergraduates of Oxford and Cambridge) our contemporary gives us the benefit of its experience as follows: "At any rate, we have usually found the medical student to be an individual who combines the maximum of ill-breeding with the minimum of sobriety and who may be generally classified under the genus 'cad,' though doubtless Mr. Turner regards the few exceptions as a hopeful and promising sign for the future." Medical students are drawn from the same social stratum and are educated at the same schools as members of the other professions and they very commonly have relatives in the church, navy and army, law, literature, science, and journalism. These are not "generally classified under the genus cad," although there are doubtless to be found cads, snobs, and prigs among them. Mr. Turner was perfectly justified in saying that the medical profession was now only fit for those with high ideals, good health, good intellects, and a capacity for hard work.

Mr. Madden, Secretary of St. Mary's Hospital School writes to the same journal with reference to this attack—"The writer thereof must be as much lacking in knowledge of his 'subjects' as in courtesy to a class of young men who, I venture to assert, are 'second to none' in both behaviour and the ease with which they are managed if treated properly. I have had ten years' experience and can safely say that I have never met with aught but courtesy and consideration, though the students here are numbered in hundreds. Animal spirits will always be in existence where youth and health are, and who would stifle them when no harm results? The whole secret of the bad name attached to the medical student is to be found in the fact that every young man who finds himself at Marlborough-street after a riotous night, when asked what he is, replies, 'a medical student,' though he may never have seen the inside of a hospital."

DR. ALLCHIN ON DYSPEPSIA.—Dr. Allchin in an address on this subject at the Medical Society remarked,—"The very word 'digestion,' was employed with much uncertainty and variability of meaning. He urged that this term ought to denote the entire series of changes which the ingesta underwent during their passage along the alimentary canal, and it ought not therefore to be restricted to changes which occurred in the stomach only. Of the four successive stages of digestion, the oral or salivary, the gastric or peptic, the pancreatico-biliary and the intestinal, the gastric was probably far from being the most important, any deficiency being made up for at other stages. He pointed out that very little absorption, if any, of digested proteids took place from the stomach, and there was much reason to believe that the gastric functions might, in great measure, be compensated elsewhere in the canal, in proof whereof he instanced the remarkable case of Dr. Schlatter's in which the stomach was extirpated without entailing much subsequent inconvenience to the patient. Digestion should not be taken to include the function of absorption, which was wholly different in its nature from the complex chemical changes which constituted digestion. He classified the disorders of digestion from a causal point of view as follows: (1) Errors of diet; (2) diseases of the digestive organs, structural, nervous, or in connection with the blood or lymph; (3) improper bacterial action in the gastro-intestinal contents, (4) defective absorption of the digesta; and (5) abnormal intestinal excretory processes." Strange he should say nothing about one of the commonest causes of indigestion, namely, faulty mastication. Can it be that be is unaware of it or minimises its importance?

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THE MICROBE THEORY!—A recent order received by a country druggist—"1d. Hen or Red Beans; it is for to put on some ashes to fetch the grubs out of my teeth." We suppose it means Henbane seeds which are often used by the ignorant for the above purpose.

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NATIONAL DENTAL HOSPITAL.—The Annual Dinner of the Staff and the Past and Present Students will be held in the Venetian Salon of the Holborn Restaurant on Friday, the 18th instant, Prof. Francis Gotch, F.R.S., of Oxford, in the Chair. We are requested to say that any old students who have inadvertently not received notice should apply to the Secretary for tickets.

# Abstracts of British & Foreign Journals

## CONTOUR SLIP MATRICES.

By J. F. P. HODSON, D.D.S., New York, N.Y.

Written at the request of the President and other Members of the New York Odontological Society, in elaboration of the clinical demonstration of February 15, 1898.

Matrices have heretofore been valueless to me in my practice, for the following reasons: First, and most important, being but a straight band around the tooth, the swell or contour obtains but in one direction, leaving the other (the perpendicular face) quite as innocent of contour as though a separating file had made the space, a very widely differing condition from the "oranging" contact of the ideal approximal surfaces.

Second. In case of the slightest depression in the cervical face of the tooth banded, the very act of drawing the band tight leaves this space bridged across and so wide open from the interior, and a consequent woeful cervical condition of the produced filling—either to finish or to leave.

Third. The same drawing of the band tight pulls it quite away from the contiguous tooth's face, and, unless the teeth have been previously wedged apart, destroys all proper impingement and leaves a permanent parallel space exactly equivalent to the most ancient ones made by straight separating files.

Fourth. The whole apparatus, steel band and clamp, or screw device for drawing tight, is large and cumbersome, and must of necessity be removed before the patient leaves the chair, and (again unless a considerable wedged space has been made) making it impossible to remove without destroying the very contour it was presumably applied to produce.

The simple and delicate, but very powerful, little slip matrix herewith presented has, in my experience, wholly obviated all of these objections, and has become one of my most cherished daily assistants in the treatment or morsoapproximal cavities. They were conceived originally for the plastics, in which case they were left in place over night (the plastics thus setting under pressure), slipping out easily the next day away from the then hardened and perfectly contoured surface of the filling.

They are most easily made, even for each case, though in practice this is not necessary, as they may be employed over and over again, as follows: Suitable shaped pieces, of a size to a little more than overlap the cavity margins, are cut from thin annealed steel (I have happened upon exactly the required sort in that which is employed in stiffening the bottom of ladies' dresses), all corners and burred edges smoothly finished; then a tiny hole punched close to the middle of both the buccal and lingual edges, and it is then laid upon a piece of lead and swaged (not merely bent, be it remarked) into perfect concavity, greater or less as the individual case shall require, by tapping with a hammer a convex end of hardened steel laid upon it; my own instrument being a round-headed picture nail, case-hardened, polished, and with twisted wire attached at right angles to a handle. Any amount or shape of concavity required for each case can be thus produced in a moment, either newly from blanks kept ready or changes made in those used for other cases to fit the one in hand, about a dozen of different sizes and degree of convexity being sufficient to select from, with little or no change for all ordinary cases. The tapping having restiffined the steel somewhat, taken in connection with the impingement of the convex face against the approximal surface of the adjoining tooth, gives firmness and strength to these little strips and a perfect hugging fit to the surfaces of the tooth being filled, especially at its cervical margin, that is most satisfying.

All preliminary wedging of these side and back teeth has so become with me practically obsolete, the necessary filling of approximal faces previous to filling, by passing a very thin ribbon saw between the teeth, and following this with the thinnest polishing strips, furnishing all the space required for the delicate thinness of these slips.

The perfect damming which these slips create against any moisture short nf the soaking from a flood of saliva, makes it really, on some occasions, a work of supererogation to use the rubber-dam at all; but however this may be in any particular case, all being in readiness, the slip is started in its space with the tweezers, and then carried smoothly home with a curving slide, by means of a large flat-end plugger placed on its top edge. If it be found that it catches on the cervical edge of the cavity, place a large pointed plugger against that point from inside the cavity and gently pry the edge outward, at the same instant as pressing on the top edge, when, upon passing the obstruction, it will be found to fit the contour and edges like a glove and impinge against the adjoining tooth at the same time.

If the "knuckle" be (as is usual) near the centre of the approximal surface, it will be found to be perfectly resistive at all margins to any filling pressure. If, however, the teeth be long and the "knuckle" nearer the morsal surface, the cervical edge of the matrix will be apt to spring away under such filling pressure. A little wooden wedge between the teeth at that point will entirely obviate such difficulty.

The slips are removed immediately upon getting past the "knuckle," in the case of a gold filling, and completing the filling without them, or the next day, after filling with amalgam or other plastics, by placing two tiny excavator points in the holes on each side and drawing them out with the same curving motion as was made in placing them, and finishing the filling with thinnest strips in the usual way.—*Cosmos.*

## PLASTIC FILLINGS.

Abstract of a Paper by Dr. R. B. ADAIR, read before the Georgia State Dental Society, 1898.

I adopt the following method in preparing cavities and filling with amalgam. I would here state that I consider it good practice to fill all posterior to the first bicuspid with amalgam. I prepare the cavities with as much care as if I were going to insert gold fillings, and where the edges of the cavity are very frail, and in deep-seated cavities, I think it good practice to mix up a little cement to the consistency of thick cream and flow this into the cavity previous to filling with amalgam, but you must not allow the cement to come in contact with sensitive dentine or near an exposed nerve for it will surely result in the death of the nerve. Always flow first a film of the oxide powder mixed with oil of cloves and birch wood creosote, equal parts; then imbibe excess of liquid with bibulous paper before introducing cement. I have the amalgam ready prepared and insert it while the cement is still plastic. Introducing the amalgam in the usual way, I use a sufficient pressure to force out the excess of cement. This leaves the cavity filled with a cement lining with a metal finish. I think the amalgam should always be packed in with the same care used in filling with gold, using smooth surfaced pluggers and rotary motion; then finish by carefully burnishing over the surface tin-foil or bibulous paper. This forces out all excess of mercury and compresses the mass in one direction. Then at a subsequent sitting, say at any time after twenty hours, polish off the filling nicely and smoothly with the margins of the cavity, being careful to leave no overlapping material at any point, and especially no fullness on the grinding surface. This polishing can be best done with sandpaper disks or polishing strips, engine burs or corundum stones, same as for gold filling. For approximal fillings in bicuspids and molars I am a strong advocate of the use of the matrix, either using two thin wedges forced in between the teeth, one from the outside and the other from the inside, and when the fillings are made these incline wedges can be removed without disturbing the filling.—*Dental Weekly.*

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## PHOSPHORUS IN LUCIFER MATCHES.

At the conclusion of an interesting article on the history of the development of the lucifer match, *Nature* expresses the opinion that there is no longer any valid reason why phosphorus poisoning should be allowed to exist. "Yellow phosphorus is not essential to the manufacture of a lucifer match. If phosphorus in any form is required, it need only be in the form of the innocuous red variety—even for a 'strike anywhere" match. Red phosphorus matches are rapidly gaining ground all over the Continent, and the day will probably come when this country will range itself with Denmark and Switzerland, and prohibit the use of all matches containing ordinary phosphorus." It is a curious circumstance that, according to our contemporary, the first friction matches made in England were free from phosphorus. The lucifers, or "Congreves," first manufactured by John Walker, of Stockton-on-Tees, in 1827, consisted of strips of stout cardboard or thin wooden splints, about 2½ inches long, coated to about one-third of their length with sulphur, and tipped with a mixture of antimony sulphide, potassium chlorate, and starch and gum. With each box, which contained fifty matches and cost half a crown, was supplied a folded piece of glass paper; on drawing the match between its folds the composition inflamed and ignited the sulphur on the splint. The most deleterious part of the work of making phosphorus matches is the dipping. The dippers stand over a heated stone or plate coated with the composition from which a fume arises. It is improbable that the fume can contain any sensible quantity of free phosphorus, and it is surmised that it consists of the lower oxides of phosphorus, and in particular of phosphorus oxide, which is more volatile than phosphorus itself. In boxing the matches it frequently happens that numbers ignite, and the air of the boxing factory is occasionally charged with a considerable amount of these oxides of phosphorus mixed with phosphoric acid. Efficient ventilation, cleanliness, and strict attention to the teeth minimise the risk of phosphorus necrosis, but it remains to be seen whether it can be entirely obviated by these means. When red phosphorus was discovered by Shrötter of Vienna in 1845 it was hoped that, as it is practically non-volatile, does not oxidise at ordinary temperatures, and therefore emits no fume, its employment might completely solve the difficulty, and igniting compositions were in fact made with it both in Germany and in England nearly fifty years ago. But it was found that the matches were difficult to strike and that the ignition was almost explosive. Hochstetter of Frankfort, it is stated, manufactures matches containing red phosphorus, and said to be cheaper than ordinary matches, which burn quietly and may be ignited even on a cloth surface. Safety matches were originally suggested by the late Professor Böttger and were first made at Jönköping in Sweden in 1855. The principle of these matches was that the match was tipped with a composition consisting of antimony sulphide, potassium chlorate, and glue, and was ignited by rubbing against a surface coated with a mixture of red phosphorus, antimony sulphide, and glue. Various modifications have been introduced by different makers, but the principle remains the same. It is added that the amount of the red phosphorus needed to ignite these matches is extremely small, less it is said than one five-thousandth of a grain; in fact it is possible to inflame many of them without any phosphorus at all by rubbing against a smooth surface such as that of glass or paper.

# TEMPORARY SETS OF ARTIFICIAL TEETH.

By R. E. Sparks, M.D., D.D.S., L.D.S., Kingston, Ont.

This is a question which does not receive the attention from the profession it should, consequently is not appreciated by the public as it should be. Such questions as the following reveals the ignorance on the part of those who contemplate wearing artificial teeth: "Do you lend a temporary set?" "Have you any temporary sets on hand?" "Have you a temporary set I could wear until my gums are healed?" Being informed that it would be impossible for a patient to wear a set of teeth which had not been made expressly for the case in hand, we are asked, "Do you charge anything extra for that?" Some practitioners give their patients to understand that anything is good enough for a temporary set and that very little need be expected of it. These are they who lend or make a temporary set at a very small cost to the wearer.

We frequently hear from patients who apply for permanent sets, that they had temporary sets but never wore them.

Some practitioners discourage the use of temporary sets, assuring their patients that by waiting a few weeks or months they can have a permanent set. So we see many wearers of artificial teeth with features distorted, gums flabby, flaps of unhealthy mucous membrane drawn down into the spaces left by absorption of the alveolar process after the insertion of the artificial teeth. So we desire to consider for a few moments the following questions: Are temporary sets of artificial teeth beneficial? Why? How may they be made to give the wearer most comfort and benefit?

I take the ground that temporary sets are beneficial, if made so they may be worn with comfort. First, the patient has the use of them for mastication, and this most important to the individual with weak digestive powers, whether hereditary, or caused by continual overstrain by loss of masticating organs. Secondly, articulation. This is also a very important consideration to persons who sing or speak in public. Thirdly, personal appearance. This is no small consideration to ladies, particularly those whose duties bring them much in contact with the public. Fourthly, as a protection for the gums. Instead of temporary teeth being an irritation to the gums made sore by the extraction of the teeth, they protect the gums from injury, from contact with hard substances of food and from the teeth in the opposite jaw, where such exist. Fifthly, temporary sets fill the gaps where any extensive bridging is to be done, but where it may be necessary for any reason to postpone the operation. How may they best be made for the comfort and benefit of patient?

Where I can do so, in the case of upper sets I prepare to extract the molars and second bicuspids some weeks before I insert the temporary set. The greatest shrinkage takes place during the first few weeks. I leave the front teeth for appearance and use, where they are of any use for mastication. Ladies who occupy public positions object to being left without any teeth whatever. When the gums, where the molars and second bicuspids have been extracted, are healed and the sharp points absorbed, I extract the remaining teeth and take the impression at the same sitting. Where the teeth have been out for some time I allow rubber to pass up over the gums. Where the teeth have just been extracted I grind the tails of the artificial teeth to fit into the sockets left by the recently extracted teeth. This method anticipates the absorption of the alveolus. I have often seen temporary sets of teeth put in on this principle, fitting as well, after having been worn two or three years, as others which had been worn two or three months, but had been put in on the ordinary principle. This is not always feasible where an anæsthetic is administered unless it be gas, which may have to be administered twice or more times. The advantages of inserting temporary sets upon this principle are many. It gives them a very natural appearance, looking as if the teeth had grown out of the sockets. After the outer wall of the alveolus is absorbed the tails of the teeth set closely to the ridge. By this method one may, with considerable accuracy, take the impression and make the plate before extracting the teeth. To do so, cut the teeth off the plaster cast, make sockets sufficient to receive the tails of the artificial teeth. This is particularly appreciated in cases of partial sets, as the teeth can be extracted and artificial set inserted at the same sitting. But supposing for some reason, for instance chloroform be administered, the teeth must all be extracted at the one sitting. I would recommend that the gums be given a few weeks for absorption to take place. Then, as in the other case, I would have the artificial gum pass up over the ridge as far forward as the second bicuspid. The front teeth I would grind to fit the gum. That the tails may fit very closely I shave the cast where the teeth come in contact. The advantages of this method over having a gum of whatever material are various.

An artificial gum under the lips, just after the teeth have been extracted will in most cases make the mouth appear too full. The ridge being prominent, the artificial gum of whatever made is almost certain to show, and as it is seldom feasible to use gum teeth, vulcanite is used and looks very unnatural. But a far more serious objection than these presents itself and forbids the general use of gums over the anterior ridge of the upper jaw in the case of temporary plates. If worn for any considerable time after the gums are absorbed, the ridge becomes flabby and the mucous membrane of the lip becomes drawn into the space between the plate and ridge. Why this should occur at the front of the mouth and not at the back, I am at a loss to say. In the case of temporary lower sets I usually cover the ridge entirely around with vulcanite and use plain teeth. The lower jaw being less prominent than the upper, the projection of lip caused by a thin layer of rubber is not so observable. The lower plate having to depend for retention upon its contact with the ridge, unlike the upper set which has the palatal contact, makes a gum all the way around more desirable.

As much care should be taken to secure a good articulation as in the case of a permanent set. As ta the length of time it may be well to advise a patient to wear a temporary set. no rule will apply. I recommend the wearing of them as long as they are retained well and used with comfort, but warn the wearer against wearing them after they become loose and uncomfortable. I always expect a well fitting temporary plate to be worn a year. By that time I expect the gums to be in a good condition for a permanent set. In the spring of 1875 I made a temporary set of teeth for a lady three weeks after having extracted her upper set. About two years ago I saw her and she was still wearing it with comfort for twenty-one years. She had then lately lost off the central incisors. She said she would have them replaced by others on the same plate, as it was all right and she did not know what she might get next time. So I suppose she is wearing them yet.

The wearing of a temporary set overcomes the desire for a permanent set before the gums are ready for them, as is so frequently the case where temporary sets are not worn.

As regards the fee that should be charged for temporary sets, that could no more be regulated than could the fees for permanent sets, or for any other operation. There is no reason why a temporary set of teeth should be made any cheaper than a permanent set, or that a temporary and permanent set should not be twice as much as either one, especially when extraction of the teeth is regarded as a part of the operation. But there seems to be a sort of retail and wholesale principle observed, that two sets shall cost less than twice as much as one set. This being the case I make it a rule to have the retail fee for the first set. This ensures me the making of the permanent set if the temporary set have been satisfactory and the patient be within reach. It insures me against loss, if for any reason the patient should get the permanent set elsewhere.—*Dominion Dental Journal.*

## WARRANTING FILLINGS.

"Doctor," said a patient, as he questioned the propriety of having a tooth filled, "do you warrant your work?"

"No," we replied, "our work will not be everlasting, any more than nature's is."

"Then your filling will not preserve the tooth?"

"No; there is no preservative quality in the filling; it merely protects the cavity from further decay just as a sound tooth is protected by enamel."

"Then it may have to be filled again, however well you may fill it now?"

"Certainly, our work is no more perfect than Dr. Nature's. You see by this decay that his work sometimes gives way. In fact, we cannot expect to rival nature. The enamel in a sound tooth is a better protection against decay than we can hope our gold to be, though I do my very best work. The causes of decay will still go on, and it may undermine my work just as it will in nature's better work. For teeth now sound may by and by decay. Why should my filled tooth resist the ravages of decay better than its enamel did? Teeth should be frequently inspected, especially in the first half of normal life, and at the first appearance of decay, whether of filled or unfilled teeth, it should be repaired. Then few teeth would be lost, and the cost of repair would be small. It is the neglect of teeth that is expensive."

If dentists would thus be candid, there would be less after blame and annoyance, and patients would respect our reasonable representation of the subject. Dentists must guard against promising too much, and patients must not be allowed to expect too much.

We do not say this to protect poor work. If our work is not the best than can be done, we should cheerfully stand the blame and be quite willing to repair the deficiency. But such expressions as "I will warrant that filling to last as long as you live," is misleading. It sounds nicely, but the patient goes away over-confident in possible results, and gives no allowance for even reasonable defence in future exigencies.

Candour is golden, and in the end will being more gold than over-statements.—*Dental Brief.*

## CARIES OF AN UNERUPTED TOOTH

By W. D. Miller, D.D.S., M.D., Berlin, Germany.

From time to time we read in the dental journals of rare cases, in the domain of dental pathology, for the origin of which our generally accepted views and theories offer no satisfactory explanation.

A case of this catagory was described by Pierce in the *Dental Cosmos* for 1893, page 80, and as it has been cited as a proof of the untenability of the chemico-parasitical theory of caries it will be of interest to study the question more closely.

The case was that of a lady, thirty-five years of age, who suffered severely from facial neuralgia on the left side. On examination Peirce discovered a tumour, about two centimeters in diameter, just above the tuberosity. On cutting into the tumour he came upon a hard substance which proved to be the third molar. Upon further examining the cavity he discovered and removed three supernumerary teeth. The first of these teeth had six cusps, arranged in two parallel rows, the second had only four cusps, while the third resembled a bicuspid and was only one-sixteenth of an inch in length.

On the distal approximal surface of the second tooth was a well-marked cavity of decay, the carious action having penetrated through the enamel and well into the dentine." "The existence of true caries under these conditions," writes Pierce, "is extremely interesting from the fact that the teeth were completely covered by the soft tissues of the gums, and therefore entirely protected from any direct action of the oral fluids and food *debris*."

Peirce offers no further remarks upon this subject, but Hans Block (*Dental Cosmos*, 1893, page 605) says, "This case, where true caries had destroyed an unerupted wisdom tooth, proves that bacteria are not even an essential factor for caries, as, in this instance, caries did occur on a tooth which never was exposed to external influences, hence also not to bacteria." This statement was mentioned by Block notwithstanding the fact that neither he nor any one else had examined the tooth with the object of ascertaining whether bacteria were really absent or not.

Professor Peirce had the kindness to send me the tooth in question some three years ago, but owing to various circumstances it is only now that I am able to report the result of its examination.

The outward appearance of the cavity differed in no wise from any ordinary case of decay, and need not therefore be described.

As the dentine was, of course, completely dried up, I laid the tooth in pure water for twenty-four hours in order to soften the carious portions, and then with a spoon-shaped excavator removed as large a piece as possible, from which I prepared sections by means of the freezing microtome and stained them by the Gram method. The microscopical examination revealed the typical appearances invariably seen in dental caries. The bacteria present were mostly cocci; bacilli were much less numerous. The characteristic iodine reaction could also be obtained, though it was not pronounced. Consequently, as was to be forseen, the presence and action of bacteria were proven in this case as in all others. The question now arises: how did bacteria get there, and how could they, without fermentable substances, form the acids necessary for decalcification?

The thought naturally presents itself, that, even though the tooth at the time of the extraction was so covered by the gums to be quite shut off from the oral cavity (Peirce does not seem to have made a thorough examination with reference to this point), it must at a former time have been accessible to the fluids of the mouth. This supposition was supported by the fact that the microscopical examination of the Nasmyth's membrane, isolated by means of hydrochloric acid, not only revealed the presence of discolourations in several places, but also showed the membrane to be invaded by bacteria of various forms. Furthermore the fissures were distinctly discoloured.

These facts could be explained, if the tooth had really never been erupted, only on the supposition that a process of suppuration had existed in the neighbourhood of the tooth, but Peirce does not mention anything of the kind in his report. All the facts point to the conclusion that the tooth in question must at some time or other have been, for a considerable period, exposed to the action of the secretions and food particles in the mouth. At all events it was far from being a case of "caries without bacteria."

Through the kindness of Zahnartz Horstel, of Plauen, I was put in possession of a preparation which might be described in this connection. The two temporary molars and the cuspid (right side below) of a seven-year-old child were extracted on account of a severe suppurative process at the roots. On removing the first molar the crown of the first bicuspid, which was wedged in between the roots of the molar, came out with it. Apart from the defective calcification of the enamel the surface of the crown was covered with black-green spots that had certain likeness to chronic caries. Closer examination, however, showed that it was only a case of discolouration, probably caused by some derivation of the colouring matter of the blood. Numerous bacteria, cocci as well as bacilli, could be demenstrated on the surface of the enamel as well as on the wall of the pulp-cavity, which would naturally be the case in a tooth long immersed in pus. Neither the enamel nor the dentine showed any changes indicative of caries.—*Cosmos.*

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# GUTTA-PERCHA FOR CERVICAL BORDERS.

By Dr. STAFFORD G. PERRY, New York.

Gutta-percha is quickly applied to all these cervical borders, and has the great advantage of being safe. Though of course, in a few years after expanding and bulging out so that it must be trimmed off, it will finally rot and have to be renewed. It is a very safe srbstance to use, however, as any bulging and rotting will be detected, owing to the fact that the oxyphosphate placed on it will wear away and have to be renewed in two or three years at the latest, and at each renewal the exact condition of the cervical border can easily be ascertained.

This combination for very badly decayed teeth, particularly bicuspids, becomes in my judgment a very wise one to adopt. There will be generally two or three renewals of the oxyphosphate to one of gutta-percha. Teeth treated in this way may not increase one's reputation, because when the oxyphosphate wears away patients will come saying the filling is out, but the operator can hear this undisturbed, because he knows at the cervical border it is safe and sound.

Of all the substances that can be used at this border in badly decayed teeth that must be treated with plastic, I believe gutta-percha the safest. I will not say that I think it in all respects the nicest, for the bulging or the rotting will be noticed by careful patients who have the habit of passing the silk ; but for absolute safest I think it is unsurpassed by any other substance, and for the reason that with it such a perfect adaptation can be made to the walls of the tooth, and because it has the preservative quality.

For many years I have in many cases protected the gutta-percha from wear by covering it with amalgam instead of oxy-phosphate of zinc. In such cases I have filled the cavities nearly full of gutta-percha and then covered them on the grinding surface only with a rather thin filling of amalgam. I have known such fillings to last many years, but there is one danger—namely, that of the expansion of the gutta-percha causing the thin walls of the tooth to split off. This danger is not so great, however, if the amalgam is only used on the grinding surface and the gutta-percha is left free on the whole approximal surface.—*Western Dental Journal.*

## HARE-LIP AND CLEFT PALATE.

By R. W. Murray, F.R.C.S.,
Surgeon, Liverpool Infirmary for Children.

During the last eight years I have performed 195 operations for hare-lip and cleft palate, and though I have nothing particularly novel to relate, I thought it might be of interest to summarise my experience and to direct attention to certain details I have found of advantage.

For hare-lip I have operated 122 times. The deformity in the great majority of cases involved the left side of the lip, and was associated with a cleft palate. The age at which the operation was performed depended, of course, upon various circumstances, but I selected about the fourth week. I have frequently operated during the first week of life, but these early operations are not entirely free from risk, and I well remember a case in point. Some few years ago I was urged to operate upon an infant two days old, who had a hare-lip and cleft palate, but otherwise was apparently a well-formed child. I declined to operate because, although the child appeared healthy, she constantly vomited what nourishment was given. This she continued to do until her death a few days later. We fortunately obtained permission to make an examination, and found the small intestine to be completely imperforate.

The method of operating I usually adopt is very similar to that suggested by Mr. Edmund Owen. The infant being under chloroform, I freely divide the lip on either side from the maxillæ and alveoli, and feel sure the success of the operation largely depends upon the freedom with which this is done. I then prepare the edges of the cleft.

It is well not to interfere with the premaxilla, by bending the bone back or otherwise, for it is quite remarkable how the closure of the lip influences the subsequent growth of the bone. I have noticed in a large number of cases, where the gap in the alveolar margin has been considerable, that a few months after the closure of the soft parts over it, the gap has practically disappeared, the alveolar margins being almost in contact. As regards sutures, I have never used hare-lip pins, preferring silkworm gut and horsehair.

The advantage of this particular method of operating is that it ensures a continuous line of mucous membrane for the upper lip, and the subsequent scar does not suggest a hare-lip to anything like the same extent as if the scar was vertical. But, after all, the chief difficulty in these operations is not with the lip, but with the nose.

Before operation, when the cleft is complete, the ala of the nostril on the affected side is markedly flattened, and I have often noticed in my own practice and in the practice of other surgeons that, although the result of the operation has been satisfactory in respect to the lip, the result has been marred by a falling away of the nostril on the affected side.

To obviate this, I have for the last few years approximated the ala of the nostril on the affected side to the nasal septum by means of a button suture. This suture also tends to steady the whole lip, and so save the strain on the sutures when the child cries. This button suture should be removed on the third or fourth day, otherwise the nostril on that side is apt to remain too compressed.

In cases of double hare-lip, when the intermaxillary bone is prominent, I almost invariably remove it, and a week or so afterwards proceed with the closure of the lip. A great deal has been written both for and against the removal of this bone, but to my mind the advantages of removal when the bone is prominent far outweigh the disadvantages. If the bone is retained it acts as a wedge, preventing the closure of the anterior part of the palate; besides, in many cases the presence of this bone, even after being pushed back, would, considering the small amount of material we have for the formation of an upper lip, render the operation upon the lip extremely difficult.

The main objection to the removal of this bone is, that the upper lip becomes shortened, and the lower lip consequently projects, producing an under-hung appearance. But this flattening of the upper lip can, to a very large extent, be obviated if the bone is removed subperiosteally.

Now, let us consider briefly the closure of the cleft palate. In all surgical textbooks, and in most of the works dealing especially with this subject the age stated at which the palate should be operated upon is somewhere between the third and sixth year. This I am convinced is a mistake, for after all the chief object in closing a cleft palate is to render the powers of speech more perfect than they otherwise would be. If operation is delayed until the third year or later the child by that time has learnt to talk, and necessarily to talk badly—a habit which, when it is once acquired, it is very difficult to overcome completely. The point I wish especially to emphasise is this; the palate should be closed before the child has learnt to talk at all. This being the case, the sooner the cleft is closed the better, and I have on several occasions operated upon children during the first few months of life, but have come to the conclusion that, as a rule, it is not advisable to operate so early. When performed at this early age the operation is difficult owing to the small space one has to work in; the tissues are extremely friable, and require to be handled with the greatest care; besides which the halves of the uvula are then so small that, after paring their edges, there is hardly sufficient tissue left with which to form a uvula.

During the last four years I have delayed operating until the child is about twelve months old, and I much regret that geographical considerations prevent me showing you some children whose cleft palates were operated upon during infancy, and must ask you to take my word for it that the children now talk quite naturally, it being impossible to detect from their speech that they ever had cleft palates.

In these particular cases the cleft of the palate was not associated with a harelip. When the deformity includes both the lip and the palate I operate upon the lip about the fourth week, close the soft palate at the end of the first year, and subsequently close the hard palate. In this class of case the result of operation, as regards the powers of articulation, is necessarily not so satisfactory as when the palate only is cleft, but in favourable cases the defect in speech is not very noticeable.

Writing on the same subject, Mr. I. Mossop, F.R.C.S.E., says :—

"The methods of operating in severe cases of hare-lip cannot vary to any great extent; to make the most of the material at your disposal is all that you can do, and any adjunct to the information we already possess is welcomed by the operator. My remarks do not refer to the simple notch or cleft in the lip, but to those widely-divergent gaps which are usual in hare-lip associated with cleft palate, with scanty material to work upon. At the Newcastle meeting of the Association in 1893 I was greatly interested in a paper by Mr. Thomas, of Birmingham, on Some Points in the Operative Treatment of Severe Hare-Lip. He described a method of procedure which, in my experience, has proved successful, and which I strongly commend to your notice. His first aim is to secure symmetry of the nostrils; when that point is attained he later on deals with the notch which remains. He looks upon the formation of the nostril in severe hare-lip as the most important step in the operation, and rightly so, for if you fail in this you cannot afterward rectify it, as you can that of an uneven cicatrix of the lip itself. There can be no doubt that the removal of the projecting premaxillary bone is in the greater numder of instances an absolute necessity, and if after its removal the lip is flattened and appears to hang back from the lower lip, the dentist can in after-life remedy the defect.

The procedure suggested by Mr. Tnomas is, in short, to restore the nasal aperture by bringing up the termination of the cartilage to the base of the column, and thus form a floor margin to the nostril.—*British Medical Journal.*

# PRESERVATION OF TEMPORARY TEETH.

By Dr. W. H. Hall, Denver, Colorado.

A neglected, abused, or maltreated first dentition often causes a sad disfigurement of the permanent set. A premature removal of the temporary teeth is a more frequent cause of irregularity in the permanent set than a tardy removal. This is a valuable lesson the dental profession is teaching, and we are persuaded that it is not altogether in vain. Because a temporary tooth aches it must not be concluded that extraction is the only treatment, nor simply because it's "only a baby tooth" that it's not worth while to give it any other considerotion. True, it is much easier for the operator to extract it than to give it treatment, and parents think only of such prompt and heroic measures as will end the ache at once and forever. (How sad that prevention was not thought of months, yes, even years before). The family physician is often sought in such cases, and yields to the desire for extraction, thereby doing violence perhaps to his conscience and better judgment.

The conscientious dentist (and physician) will not only protest against premature extraction, but will follow his protest with a kind and intelligent explanation of the proper treatment, with good reasons therefor, and then if necessary positively decline to be a party to the "slaughter of innocents."

The preservation of the temporary teeth is important for several reasons.

*First.* They are needed for masticating purposes, and must be kept in good condition for the proper performance of that function. If badly decayed, mastication cannot be properly performed, indigestion and dyspepsia result, with consequent general systemic disorder.

*Second.* They contaminate the breath, and this fetor enters the lungs; the vitiated saliva mixed with the food passes into the stomach; such conditions we contemplate with disgust and horror.

*Third.* Decay involves the pulp, causing pain and suffering to the child, with more or less general nervous disturbance; finally death of the pulp, resulting sooner or later in suppuration, adding another objectionable element to the contents of the stomach. The death of the pulp portends further trouble in the future because the physiological process of resorption of the root ceases, and these roots, minus crowns, sometimes remain for several years deflecting the permanent teeth from their course, or crowding them from their position in the arch.

*Fourth.* The temporary teeth retain the fullness of the alveolar process and maxillary development.

*Fifth.* They are needed as wedges to support and retain in its own place each contiguous tooth until the approach of the teeth of replacement.

The evils of a premature extraction of the temporary teeth are,—

*First.* Possible irregularity of the permanent teeth.

*Second.* Absorption of the alveolar process and consequent contracted condition of the maxilla by reason of arrested development, thus permitting the contiguous teeth to move toward one another, closing the space, resulting in disalignment, impaction, or prevention of irruption of the permanent tooth. Especially important is the second or posterior temporary molar in retaining the first permanent molar in its place, and also the temporary cuspids in retaining the permanent bicuspids in their places. The premature loss of the temporary cuspid is perhaps the more frequent cause of disfigurement and a more serious irregularity than any other with which the dentist has any experience.

Finally, premature extraction may cause the destruction of the germ of the permanent tooth. For example, the pulps of the *first* and *second* bicuspids are formed about the fifth or sixth years, so a removal of the anterior or posterior molars at this period may result in the serious injury of the permanent tooth.—*Cosmos.*

## A VULCANIZED FINISH.

A nice way of preparing plates to come from the flask clean and smooth. and ready for pumice and final polishing, is to be sure and get a perfect, smooth cast. Make your model plate of paraffin and wax. After the teeth are mounted correctly, shape the gums and plate just as you would have it for the mouth; then after trying it in the mouth to make sure it is all right, place it back on the model and flask as usual. When the flask is opened, place both parts in boiling water, and with an atomizer tube go over all the joints and pins, thoroughly washing out all the wax. Take the flasks out of the boiling water, and immediately coat both the model and the lingual surface of the plate with a varnish made from pure liquid silex, to which has been added enough fine, pure powdered tin to make it give a good metallic coating. Then set the flasks in the air a few minutes until the varnish is set. Now lightly coat both varnished surfaces with soap to prevent the metal coating from adhering to the vulcanized plate. On opening your flask the plate will come out clean and smooth, requiring but little work to finish.—*Weekly Dental.*

# THE HEREDITARY TRANSMISSION OF FUNCTIONAL AND ORGANIC DISTURBANCES OF SPEECH.

Gutzmann (*Allg. Med. Central Ztg.*, 1898, xlvii., 159), according to a communication to the verein für innere Medicin at Berlin, has made studies of 2,228 speech disturbances, as regards the deaf and dumb. In the first place he found that of 548 inmates of the Berliner Taubstummenanstalt, 45 per cent. were suffering from congenital loss of speech and hearing; 50 per cent. from acquired deafness and dumbness; and in 5 per cent. its origin was dubious. The number of scholars with hereditary loss of speech and hearing was 238; of these 41 or 17.2 per cent. were afflicted with hereditary taint; under the circumstances, not a very high percentage. It seemed remarkable that the parents on both sides had been deaf and dumb in twelve out of forty-one cases. This was especially noticed in Berlin. A number of authors have given statistics regarding the marriages between dea and dumb persons. In 724 such marriages, in which both parents were affected and producing 1,580 children, only 20 were found to be deaf and dumb (13.3 per cent.), an extraordinary small number. Again, taking into account the total number of marriages, the percentage was only 2.8 per cent. In 517 marriages in which either husband or wife was deaf and dumb, out of 1,220 children born only 7 or 0.6 per cent. were born deaf and dumb; in 104 marriages, in which both husband and wife were similarly afflicted, the percentage amounted to 4.6. As a general rule, therefore, direct transmission occurs in but a comparatively small number of cases, and when occurring is most frequent in those instances where both parents are deaf and dumb. The oft repeated assertion that the deaf and dumb are most numerous among the Jews does not hold good as regards Berlin. In respect to the influence which marriages between blood relations is stated to exert in this matter, the investigations of Gutzmann tend to prove that the effect of such influences is greatly exaggerated, as out of 548 inmates the truth of the assertion was proved in only four cases. Interesting in comparison with these figures, are those gathered from the 3,000 deaf and dumb scholars of the United States of North America. Of these about one-third were congenitally deaf and dumb, and of this number 467 or 50 per cent. were tainted hereditarily.

Congenital defect of the palate was observed by Gutzmann in 287 cases. The influence of heredity on this defect was but slight ; it was positively inherited in fifteen cases, and probably in two. A cross taint especially seems to have been present in these cases, as can be traced in a number of published genealogical trees. Thus Merkel reports the following history of a healthy pair and their children : Among the descendants of the man were two persons with cleft palates. Of the eleven children nine were stillborn, with absence of cleft palate, the two living ones having cleft palates. The man contracted a second marriage with a healthy woman, procreating four children, three of whom were born with cleft palate. Out of two normal sisters of this man one married to a normal husband, bore a son with cleft palate, who, in his turn, married a healthy woman, and among the seven children born to her were four boys without and three girls with cleft palate. The other sister, too, marrying a normal man, had a family of seven, of which number five boys were born with and two girls without cleft palate. Gutzmann himself has known of an instance of a cleft palate descending from the father to two sons, and of another case in which three brothers, descended from normal parents, and affected with cleft palates, were married to normal wives, the defect was not transmitted to any of their many sons, but only to the daughter of one. *Stigmatismus nasalis*, according to Gutzmann, is revealed in children who are disposed to this form of speech disturbance by a certain position of the teeth, " bowed teeth." The tongue impinges on the inside of the upper row of teeth as in pronouncing the sound " C," the air escapes at both sides, and thus is produced the lateral lisp (Leitwaert's Lispela). Out of 83 cases this position of the teeth was present in 99.3 per cent. Of these 60.2 per cent. were males and 39.8 per cent. were females. An hereditary taint was determined in 38.5 per cent. of the cases. This affection is frequently met with among the Jewish race, which is, as we know, inclined to this abnormal position of the teeth.—*Pediatrics.*

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RETAINING APPLIANCES.—Aluminium is a splendid metal of which to construct splints and stays in regulating. It is light, durable, easily swedged and does not corrode. It is cheap and not so conspicuous in the mouth as other metals It can be bought in wire, bar or plate.—A. C. Runyan, in *Dental Century.*

# AMALGAM AND CEMENT AS A COMBINATION FILLING.

By F. W. Knowlton, D.D.S., Akron, Ohio.

In the cavities in the bicuspids and molars in teeth below medium in texture, there is no filling that proves more successful for the comfort of the patient and the preservation of the tooth than amalgam and cement in combination; provided, the same care and attention is given such work as is necessary in all operations pertaining to filling. In this combination the more desirable properties of each material are retained and some of the undesirable ones eliminated.

The cement lining the cavity gives perfect adaptation and prevents any discolouration of the tooth, while it supports the walls better than any other filling and to some extent cements the filling to the tooth. The amalgam as a capping prevents the cupping and wearing out as in a filling of cement alone and makes a permanent out of an otherwise temporary filling. The results are so satisfactory that such work merits a more general use in the teeth designated than is usually given.

The cavity is prepared in the usual manner, not depending wholly on the cement for holding the filling in place when there is any strain on the filling during mastication. If the cavity comes in close proximity with the pulp, a thin piece of asbestos paper, cut the proper size and one side covered with antiseptic varnish, should be placed over the pulp, the varnish holding the paper in position and assisting to protect the pulp from any deleterious influence the cement might have on it. Place the powder and liquid on the glass slab and roll a small pellet of cotton very tight so there will be no loose shreds of cotton remaining. Mix the amalgam as usual and wafer a portion of it. Now mix the cement a trifle thinner than for a cement filling, and place enough to partially fill the cavity with the spatula and, taking the previously prepared pellet ef cotton in the pliers, spread the cement against the walls of the cavity with a single pressure; if done quickly it will cover the cavity nicely and not stick to the cotton. Now place some of the amalgam in the cavity and with ball burnisher work the amalgam into the cement, at the same time working the surplus cement to the margins of the cavity when it must be thoroughly removed with excavators so there will not be a particle of cement left exposed at the completion of the filling. Fill the remainder of the cavity with the wafered amalgam and finish as if it were an ordinary amalgam filling.—*Ohio Dental Journal.*

# Reports of Societies.

## STUDENTS' SOCIETY,

## NATIONAL DENTAL HOSPITAL

The usual monthly meeting of this Society was held on Friday, Oct. 14.

The chair was occupied by Dr. Pare, President of the Society.

The Hon. Sec., Mr. Edward Thorne, read the minutes of the last meeting, which were confirmed.

Dr. Pare extended a hearty welcome to the visitors present, and asked them to consider themselves members of the Society for the time being.

Mr. P. W. **Greetham** showed a specimen of metal used for lining vulcanite plates.

Mr. Greetham kindly advised members using this method, in order to avoid the failure he had experienced by the vulcanite peeling from the metal, to put the "tags" on the plate as small as possible, also to put the "tags" as close together as possible.

Mr. **Thorne** also brought forward a casual communication.

Mr. L. W. **Bennett** was elected the representative for the National, on the Middlesex Hospital Smoking Concert Committee, of whom tickets may be obtained for the "Smoker," which takes place at the Cafe Minico, on Friday, Nov. 25th.

The following gentlemen were nominated members of the Society by the Council:—Messrs. Black, Clench, Levien, Mulvey, Smythe, Stephenson, to be ballotted for at the next meeting.

Dr. **Pare** then gave his paper on "Extinct types of teeth," which was illustrated by lantern slides.

# Dental News.

## FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

At the October sittings of the Dental Board, the following candidates passed their respective examinations :—

First examination—Edyrev Bienemann, James Buntin, John Christie, William Orr Gray ("with distinction"), William Patterson.

Final examination (and admitted licentiates in dental surgery)—Sidney Brown Fisher, Aston Manor ; Wilfred E. Martin, Leamington ; John Kerr Strain, Wishaw ; Hugh L. Tracy, Ipswich.

## DENTISTS' BILL FOR NEW SOUTH WALES.

The following discussion took place in the New South Wales Parliament on the second reading of the Dentists' Bill :—

Dr. GRAHAM, in moving the second reading of the Dentists' Bill, said it was wrong that men without special training and knowledge should be allowed to practise a profession so closely affecting the health and happiness of a community. This colony was almost the only part of the civilised world where control and supervision over dentists by legislative enactment was not in existence. Queensland was an exception also, but a Bill was now before the local Legislature to remedy the defect. Dentists everywhere were called upon to understand to a certain degree the anatomy of the body, and especially the structure of the mouth. A similar Bill to the one before the House had been drafted in the Legislative Council, and had been well discussed there. The Bill proposed to create machinery for the carrying out of the Act, the principal provision being the appointment of an examining board. The bill extended exemption from its demands to those persons already practising dentistry. The educational qualifications insisted upon were those recognised in other countries.

Mr. ASHTON said there were structural defects in the bill which imported non-professional men into the first examining board, and then in further clauses excluded them. That was an anomaly which appeared unintelligible. The bill was so loosely drafted that it should be withdrawn and redrafted.

Mr. O'CONOR said that no distinction should be made between a man who had obtained his diploma here and another who had obtained his diploma in Great Britain. They should both be put on the same level.

Mr. D. THOMSON said that the bill was very contradictory in its terms. One provision would permit of the registration of medical men without submitting them to examination. He did not think that a medical man who was not qualified to act as a dentist should be entitled to registration. If it was intended that the members of the board should receive fees the intention should be made clear. A medical practitioner would, according to clause 13, be entitled to use the name of "dentist" without registration; but clause 14 would forbid his recognition as a "legally qualified dentist." It might be well to withdraw the bill for reconsideration.

Mr. HAYNES said that whatever the defects in the bill might be it would be easy to remedy them in committee. The bill was an honest effort in the public interest to effect a reform, and therefore they ought to assist in passing it into law.

After debate

Dr. GRAHAM said, in replying, that there was no defect in the bill which could not be remedied in committee. The general principle of the bill seemed acceptable to the House. (Hear, hear.)

The motion for the second reading was agreed to on the voices, and the bill was committed.

## DR. EMIL ARMAND DE TREY.

Emil Armand De Trey, D.D.S., died at Zurich, Switzerland, August 4, 1898, of apoplexy.

Dr. De Trey was born at Vevay, on Lake Geneva, Switzerland, in 1846. At twenty years of age he began the study of dentistry at the University of Berne, where he continued for one year. He came to America and entered the Pennsylvania College of Dental Surgery in 1867, graduated with the degree of D.D.S. from that institution in February, 1868, afterward returning to Berne and continuing his studies at the university, receiving the diploma from that institution the following year. In 1870 he began the practice of dentistry in his native town of Vevay, where he continued in practice for twenty-three years, afterward removing to Basel, conducting a practice in that city for a little over three years.

Ho was a member and one of the founders of the American Dental Society of Europe, also a member of the Swiss Odontological Society. He was known as a skilled operator and an ingenious practitioner, and more recently obtained additional prominence by the discovery of the special form of sponge gold known as "Solila gold," and his special instruments and methods for the introduction of it as a filling material.

Dr. De Trey was married to Mdlle. Leah Pittet, of Vevay, by whom he had two daughters and six sons, all of whom survive him. One son, Dr. Victor De Trey, is a practitioner of dentistry in Basel, and three of the brothers are at present dental students.—*Cosmos.*

## STRANGE ACCIDENT TO A DENTIST'S WIFE.

Recently, a lady was walking along Church Street, Liverpool, at the corner of Old Post Office Place, when the lid of an electric light grid shot up, and a flash of fire from the ignited contents set her dress on fire, the flame being so violent as to singe her hair. She was at once taken into a shop hard by, and the flames were extinguished. The lady was Mrs. Royston, wife of the dentist in Rodney Street. The flame from the box, which shot up close to her face, is said to have reached about ten feet high. The affair caused a great sensation at the time. A similar explosion occurredlin Church Street a few years since, and an enquiry was held, but without determining the cause. The most plausible supposition is that an escape of gas from a main had collected in the electric light box and been ignited by a spark from a defective join in one of the wires. We trust Mrs. Royston is none the worse for her alarming experience.

## DENTAL STUDENTS' SOCIETY OF IRELAND.

The first meeting of the above Society was held on Wednesday evening, the 12th ult., at the Dental Hospital, Lincoln Place, when the President, A. W. W. Baker, M.D., F.R.C.S.I., gave the Inaugural address, after which Mr. G. W. Story, M.B., L.D.S.I., read a very interesting paper on the "Six Year Molar." The Society, which has just been formed, and which will be for the advancement of dental science amongst students, has our hearty wishes for its success.

## DEATH FROM ARTIFICIAL TEETH.

The Bolton Coroner recently investigated the circumstances attending the extraordinary death of Peter Entwistle, a gentleman, aged sixty-six. In August deceased fell on the curbstone in a fit and swallowed a portion of his false teeth. Since then he has felt some inconvenience, and although under medical treatment he died. A post mortem examination revealed the fact that the teeth were deeply embedded in the left lung. A verdict in accordance with the medical testimony was returned.

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

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# INFLAMMATION OF THE PERIODONTAL MEMBRANE, PERIODONTITIS, ALVEOLAR ABSCESS, NECROSIS, AND OTHER SEQUELÆ.

By R. DENISON PEDLEY, M.R.C.S., L.D.S., Eng., F.R.C.S. Edin., Dental Surgeon to the Evelina Hospital for Sick Children, Southwark, London.

When one considers how intimately the periosteum of a tooth (the periodontal membrane) is connected with the blood vessels and nerves of the pulp, it is scarcely a matter of surprise that inflammation of the fibro-vascular membrane arises for the most part as a continuation of pathological changes which have already affected the crown. In its simplest form such inflammation may commence as follows:—A cavity of decay in some surface of a tooth has laid bare the dentine. The access of salt or sugar, and of hot and cold water, sends a thrill of pain through the tooth. This may pass away within a few minutes, to be succeeded a few hours later by symptoms of inflammation in the periodontal membrane. There is an uneasy sensation, the tooth is tender to bite upon, seems raised above its fellows, and is somewhat loose in its socket. In a day or two the symptoms may subside, and the tooth is as firm and as useful as ever.

Such transient irritation *may* happen to the soundest of teeth, and one is justified in concluding that it is due to direct communication of nervous irritation from the pulp to the periodontal membrane. Far more frequently, however, acute inflammation of a septic character occurs as a direct consequence of inoculation from the pulp chamber. It may be mentioned that exposure of a pulp is followed by gangrene. The acute pain which usually accompanies this condition has subsided, and mastication proceeds as usual. The necrotic condition of the pulp very soon extends through the whole length of the fangs. So long as the open cavity in the crown of the tooth remains patent the products of decomposition will escape into the mouth ; but as soon as this is closed, by the accumulation of food, it is squeezed down by mastication into the tooth, septic material is forced through the open ends of the fangs (apical foramen) into the surrounding tissue, and acute inflammation is usually the result. A throbbing, aching, pain is referred to the tooth and gum around it. The gum is acutely inflamed, and the tissues beneath become infiltrated

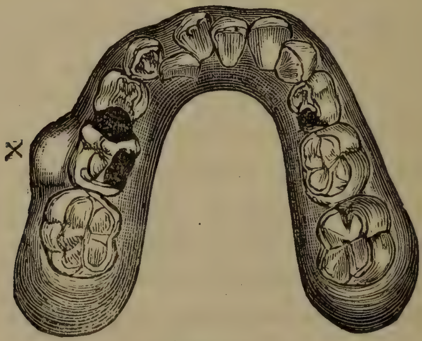

Fig. 1.

Model of lower jaw of a child aged 7 years, showing alveolar abscess on the left side, caused by a second temporary molar tooth.

and swollen with inflammatory products. The tooth is raised above its fellows, and though at first relief is found by biting, it very soon becomes so acutely sensitive that any pressure is impossible and the mouth cannot be closed. If at this stage the offender is extracted, the periosteum which clothes the fangs will be found thickened and quite red in colour. Later, this membrane will be stripped from the ends of the fangs, and pus is poured out between it and the tooth, expanding and dissolving the porous bony and fibrous tissue, making its way to the surface either round the neck of the tooth (Fig.1) or through the alveolar plate and gum. Occasionally the pus finds its way through the inner (lingual or palatal) wall of alveolus, but more frequently it opens through the buccal wall. In either case it may be expected to finally burrow through the mucous membrane which covers the alveolus. At the same time the constitutional symptoms are marked by an elevation of temperature, with headache, a coated tongue, and general malaise.

With the exit of pus all the acute symptoms subside, and the tooth gradually sinks down again into its socket, leaving a small sinus on the gum through which pus is more or less continually discharged.

This swelling and discharge is often spoken of as an *alveolar abscess*, or, more popularly, is called a gum-boil.

The consequences of such inflammation are somewhat different in temporary and permanent teeth.

The fangs of a temporary tooth are no sooner formed, than a process is commenced by which they are eaten away, in order to make room for the erupting permanent tooth. The little mound of tissue crowded with the so-called osteoclasts (large multi-nucleated cells) lies immediately beneath the open end of the fangs. This is essentially a vital process, and should the fangs remain healthy not only will they be removed, but the whole of the inside of the crown will be eaten out, so that the tooth may be tilted off the gum with the finger nail. An examination of such teeth shows little pits and cavities all over the inside of what is left. If caries has attacked any portion of the tooth, the dentine will be eaten out all the way round it, leaving the carious portion standing alone.

When the exposure of a pulp occurs, followed by death and the forcing of septic matter through the fangs, the absorption papillæ are entirely destroyed. The peridontal membrane is separated from the roots at the apex, and as pus accumulates this separation may—and for the most part does—extend right up to the neck. The alveolar wall is gradually dissolved away, leaving the fangs of a dusty brown or greyish colour protruding through the outer wall and perforating the adjoining cheek or lips. (Fig. 2.) The normal method of removal of the tooth to make way for its successor has ceased and it becomes a veritable foreign body. In cases where the periosteal covering has been removed from the lower portion of the fangs only, the tooth may remain firm in its socket, dark in colour with a small sinus through the alveolus discharging pus, showing that the apices of the fangs are necrotic. Septic inflammation of the periodontal membrane often extends to the crypts of the permanent teeth. This is more likely to occur in the region of the temporary molars.

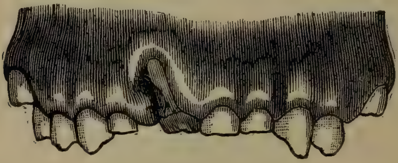

Fig. 10. Model showing necrotic root of an upper temporary central incisor tooth.

Lying immediately beneath or above them (according as one speaks of the lower or upper jaw) are the permanent bicuspids, the crowns of which are the only part of them at all fully formed ; and it is no unusual occurrence when removing a temporary molar, the fangs of which are bathed in pus, to find the crown of the bicuspid lying loose below it dark in colour, in a necrotic condition and the formative tissue of the fangs entirely destroyed.

The fangs of the permanent teeth are larger than those of their predecessors and more deeply implanted in the jaw. The alveolar process is of denser structure so that when septic periodontitis affects them the symptoms are more acute owing to the greater difficulty in the escape of pus. When, however, pus has escaped and the tooth becomes firm in its socket once more, the vitality of the periodontal membrane is for the most part retained and the tooth will still receive some nourishment through the cementum. At the apex of the fang (or fangs) it will be destroyed, the termination of the fang will be necrosed and a fistulous tract established between it and the point of exit.

The pathology of acute periodontitis followed by alveolar abscess is similar to that occurring in other bony tissues. The membrane surrounding the tooth becomes swollen and congested—hence the tooth is raised from the socket. Proliferation of cells from the fibrous tissue and the capillaries, with exudation of inflammatory lymph follows. Thrombosis of the blood vessels and a rapid liquefaction of inflammatory products into pus is a consequence of the poison introduced to the tissues, viz., micro-organisms and their chemical products. As pus accumulates, the inner layer of the periodontal membrane is more or less stripped from the cementum of the tooth. In chronic cases it is not unusual to find this layer expanded and thickened so that when the tooth is removed a small sac is found at the extremity of a fang. This stripping of the membrane from the tooth would take place more frequently were it not for the fact that pus readily finds a way into the cancellous bone of the jaw. Expansion and erosion take place simultaneously. The throbbing, aching pain which occurs while these changes are taking place, at once ceases when pus has escaped through the bone into the fibro-cellular tissues.

In acute alveolar abscess the inflammatory œdema is considerable. It is especially noticeable in the upper jaw. Children often present themselves with their faces puffed and their eyelids so swollen as to be almost closed. Just as if they had received a severe blow or injury to the face without breach of tissue.

In weak or unhealthy children pus is likely to burrow deeply into the tissues of the jaw, destroying other teeth it may come in contact with, or making its way out on the face or beneath the jaw. This may occur in connection with either temporary or permanent teeth, though it is frequently associated with the first permanent or six-year molar.

A. F. A girl, æt. five years, of pallid complexion, complains of a sore on her face. Had toothache some months ago, three weeks since the face suddenly swelled up causing much pain. It was well poulticed by the mother. The child had an unhealthy looking sore on the left cheek opposite the molar region of the lower jaw. It was small in size, circumscribed, and on its summit there was a small papilla from which pus was oozing. Careful probing showed a direct connection with the roots of a lower temporary molar which was found deeply carious, but firm in its socket. This was removed, and in one week the scar alone remained.

As in this instance, advice is often sought when the mischief is done. It also illustrates a method of treatment frequently adopted by the ignorant, viz., that of poulticing swellings upon the face, which, if nothing else happens, may leave a scar. (Fig. 3).

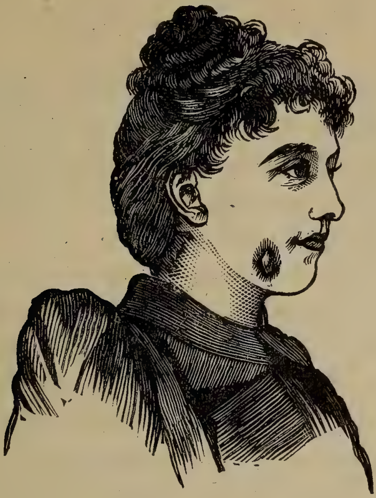

Fig. 3.—Drawn from a photograph.
Showing papilla on the face from which pus was oozing. Caused by a neglected six-year molar. The swelling had been incised several times from the outside.

Another case:—

Annie Knight, aged 13, five or six months ago had toothache on the right side. Seven weeks ago face began to swell, and hot fomentations were applied. It was then lanced, and has been poulticed since.

On the right side, beneath the lower jaw was a small papilla, around it the skin was puckered and adherent to the bone. A carious permanent molar was found quite firm in its socket. The pulp was putrid. The tooth was extracted, and adhering to the posterior fang was a small sac. In a week the sinus beneath the jaw had ceased to discharge.

*To be concluded.*

# PROFESSIONAL ETIQUETTE.*

By James Maughan, M.D.

Mr. Chairman and Gentlemen,—The subject chosen for to-night's discussion is a very good one, and to a body politic such as our Hospital gathers under its wing, such a subject should be brought forward once a year; this suggestion I make a present to the powers that be.

Honoured by the invitation of your Secretary I am here at very short notice to open the discussion, and while highly appreciating the compliment he thus paid me, I confess to myself that there are far abler hands to which he could with fuller confidence have entrusted so important, so delicate a task. And so I ask for your indulgence. First then we will clear the path by defining the term Dental Surgeon, and for our purposes we can say he is a Surgeon who makes a speciality of diseases of the teeth, their diagnosis and treatment. The Examiners at the College of Surgeons take care that he knows a good deal more than mere speciality knowledge. But that need not concern us now. To define Professional Etiquette one would say it consists in a series of laws or rules bearing upon the behaviour of dental surgeons to their patients, to their brethren, and to themselves. In the term "brethren," will you please take the broader interpretation, viz., medical *and* dental.

In professional life one of the first lessons to be learnt is Self-control, for among one's patients there may be a cranky old gouty general in the army, or perhaps a lady who is "all nerves," or "highly strung," or "neurotic." To be ordinarily civil to some such folks requires a distinct effort even in those of most heroic mould, nevertheless it is a virtue of the first magnitude to develop this said property of Self-control. In return the dentist is entitled to a forbearance, nay, a gratitude on the part of the patient; this, however, does not always show itself in a noticeable manner. It may happen to you that your treatment will be compared with that of Mr. So-and-so, advertising quack or tooth-destroying chemist and druggist. It is not a pleasant prospect to contemplate, yourself placed side by side and contrasted with an unscrupulous charlatan, and in a most calm manner unfavourably criticised, and that not by a lunatic but an apparently sane member of society. It is your duty under such circumstances to condemn in unsparing language the low and crooked practices of these unqualified unregistered scamps who under the cloak of philanthropy or religion are veritable wolves in sheep's clothing. This action on your part is due to the profession to which you have the honour to belong.

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* Read before the Students' Society, National Dental Hospital,

You will frequently have cases come before you where your advice or a small stopping will arrest the progress of disease, and the fee may be a small one. In such cases you have the option of leaving the tooth until a more extensive procedure is necessary, and thereby make your remuneration much larger. Occasions will present themselves when needless visits may be so made as to run up the bill of costs very considerably. Surely it is unnecessary for me to point out the deplorable want of principle if one yields to such temptations. It is an old rule but a golden one—never tamper with your conscience.

When a patient consults you your full and honest opinion and advice are faithfully offered, and in return one expects the acceptance and adoption of the same. There are instances on record where such an acceptance has not followed as a matter of course, but you must bear with equanimity any rebuff of this nature should it occur in your private practice. You will find it wise to develop a manner at once kind and firm, a combination of the "suaviter in modo" with the "fortiter in re." Every case should be treated with equal care, kindness and attention, and in the conversation that ensues it is very desirable to paint in happy colours the favourable result of your treatment.

Equally with the medical practitioner when an unmistakable opportunity occurs for fortifying the moral character of a patient, you are asked to utilise it and employ whatever argument you please to turn him from his particular moral obliquity.

As to your bills, they are essentials, and should receive prompt attention when they are sent out, but alas!

> " God and the dentist we alike adore,
> When we've the toothache badly, not before,
> The pain relieved both are alike requited,
> God is forgotten and the dentist slighted."

Therefore send your bills in early, and send them in regularly. The charge must be of necessity elastic, but once made, and that on a fair and just basis, any abatement should be courteously but firmly resisted unless the patient is really poor.

On commencing private practice you should call on all the doctors and dentists resident within a reasonable distance of you, and thus show your dtsposition to be one of the utmost friendliness.

When a locum tenens has fulfilled his term of office, he is entitled to be paid for his services, an omission of this very obvious duty on the part of the dental surgeon makes him guilty of dishonesty as well as a breach of etiquette.

In selecting a dental surgeon a wise man will not only choose one who possesses a legal diploma, but also one whose habits of life are not too convivial. Having made the selection he should place his wife and children under the dentist's care. Under no circumstances should he or his family be examined by another dentist without the knowledge and consent of the regular dentist.

As to the profession at large, every dental surgeon should be zealous to promote its honour and dignity. Personally he should have an unblemished character and a sound moral judgment.

It is derogatory and infamous to solicit practice by advertisement, circular, card or placard, or to offer by public announcement, Advice gratis, or to put in a conspicuous way so as to catch the public eye, "Crown, Bar, and Bridge work," "Painless Dentistry," or any similar notice.

Should it be your good fortune or the result of long and ardent labour to discover some new mechanical contrivance, or some new preparation whose virtues you have tested and tried, it is your duty at your earliest convenience to bring this discovery to the notice of your professional brethren and allow them to apply the same treatment in their own practice.

Towards one another dentists should ever exhibit a warmth that truest *camaradie* dictates, and at the same time pay a proper respect for ability and talents. The social spirit should be canvassed and cultivated. You have your evenings free, which we doctors very often have not. Unfortunately there are dentists with whom it would be impossible to form a warm *rapprochement*; in such cases let true courtesy be unfailing and refuse to discuss unkind topics anent the said individual. If he is unworthy of your courtesy he must have sunk very low indeed, but even then you can shew him an example of a high order, and this may exert the requisite moral effect upon him.

Very often a storm in a teacup arises from a patient telling only half the truth, which acting as a nucleus soon grows into a calculus of warped truth or deliberate lies enough to shock and astonish an impartial observer.

As far as possible render gratuitously your services to such of your dental and medical brethren as seek them. But if an honorarium be offered you it should not be declined.

There are some from whom you would not under any circumstances accept a fee,—there are others, however, from whom it would be wrong to refuse it.

Regarding your medical friends mete out to them the same justice you would wish for yourself. And in return whenever a medical man decides that a patient should consult a dentist he will ask who is the regular dental surgeon to whom the patient goes. A medical man who has any self-respect or any claim to the respect of others, will never foist one particular dentist on all or sundry who come to him.

If a fellow-dentist is ill or cannot by some unforeseen circumstance fulfil an appointment previously made you should fulfil it for him if at all possible, and you are asked so to do. It may, however, be impracticable; then you could see the patient, make an appointment for the following day, and thus do the necessary work for your brother practitioner. Such work should be done gratuitously, but the regular dentist should be told of the work done, and allowed to charge for it.

If you act as consultant in a difficult case, let your behaviour be in every way courteous, but absolutely free from those inordinate attentions which are only practised by the unscrupulous, who by ingratiating want to take the case out of the regular dentist's hands, and add guineas galore to their already well-filled coffers, and that forsooth in a dis creditable fashion.

When differences arise between any two dental surgeons the adjustment should be by arbitration. Each one should nominate a skilled dental surgeon, and these nominees select a third. The matter in dispute should then be placed unreservedly with these three referees and their decision regarded as final.

But it is well to check that tendency to be "sudden and quick in quarrel," and rather refuse to believe that a brother dentist can knowingly and willfully wrong you. It is with you individually that the guardianship of your profession lies, and whatever your talent may be, whether you are scholar, gentleman, philanthropist, or all three, the spirit of harmony and charity should actively pervade your professional ranks, and thus enable you to transmit to future generations the dignity of your profession intact. Let me urge you then to so adorn your life, your behaviour to your fellow-dentists and your conversation generally, that all will pay you the respect you well deserve.

If there is an active spirit of fraternity abroad, many many difficulties are brushed aside at once. And let there be an active repugnance to listen to derogatory remarks and insinuations damaging to a man's reputation, so shall there be an *esprit de corps* felt and practised throughout the profession, and the well-worn maxim "do unto others as you wish they would do unto you," will shine forth in our words and actions with a new light and a new intensity.

It is your duty to heal broken crowns, not to inflict them, and it is your proud prerogative and right to protect the good name and fame of your professional brother. In your Societies you have a fine scope for the development and consolidation of moral and social ties, and a mutual forbearance.

> "Let each man learn to know himself,
> To gain that knowledge let him labour,
> Improve those failings in himself,
> That he condemns so in his neighbour.
> How lenient we our own faults view,
> And conscience' voice we ofttimes smother,
> But oh! how harshly we review
> The selfsame errors in another.

"And when you meet an erring one,
Whose deeds are blameable or thoughtless,
Consider ere you cast a stone,
If you yourself are really faultless,
And listen to that voice within,
Whose whispers oft make man confounded,
And trumpet not another's sin—
How deep you'd blush if your's were sounded!

"Or in self-judgment if you find
Your work to others' is superior,
To you has Providence been kind,
Like you should be to your inferior,
Example sheds a searchlight ray
Of light that folks are wont to borrow,
So just improve yourself to-day,
And then improve your friends to-morrow."

As to malpraxis, that will occasionally occur, and your invariable rule must be "silence in the presence of a patient.' It is well if you never forget this rule.

As regards your duty to yourselves you cannot do better than follow the advice given by Polonius to his son Laertes—

"To thine own self be true,
And it must follow as the night the day,
Thou canst not then be false to any man."

I will detain you no longer. The task has been a pleasant one, but I would I had spent longer in its preparation. I would I had dealt in less generalities and in more particularities. It must be granted that though the painter's brush has been wielded but feebly, the study, the theme of a perfect Professional Etiquette is grand, is noble indeed.

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Sticky Wax.—For fastening teeth securely to the base plate, preparatory to trying in the mouth, a wax made with seven parts of white wax and three parts of gum dammar, melted together, and one part of rosin added, will be found far superior to the ordinary yellow wax.—*J. K. Burgess, Dental Cosmos.*

British Journal of Dental Science.

LONDON, NOVEMBER 15, 1898.

# THE PHYSIQUE OF THE PUBLIC SCHOOL BOY.

A writer signing himself "M.D." has lately written to the *Times* concerning the results of his examination of one hundred boys admitted at the beginning of each term to one of our large public schools. As the result of this examination he finds that no less than sixty-three per cent. are the subjects of deformity of some sort, such as lateral curvature of the spine, pigeon-breast, bow-leg, flat-foot, defects of sight, and temporary albuminuria. In addition to this, the large proportion fell below their average in chest girth, though some only very slightly, and thirty-nine per cent. were not up to the average in height.

After reading this somewhat depressing announcement, it is consoling to learn that most of these lads would obtain sufficient physical training during their school life to even surpass the standard. No doubt after the careful coddling many of them receive from over-anxious mothers, the rough and tumble life of the school with its manly games do the youngsters an immensity of good. At the same time the roughness and sometimes barbarity of school life has been considerably softened of late years, while the dietary has improved, so that many delicate lads can be sent to schools which would have been too severe an ordeal for them had they lived fifty years ago. The heads of schools are beginning to find out that education means something more than imparting a knowledge of classics, mathematics and science. They are recognising that the best boy they can turn out is the one with the healthy well-stored mind in the healthy body. To that end the school doctor is brought into requisition, not necessarily when the lad is ill, but by regular periodical tests as to his physical powers to find out where weakness exists, and by timely advice ward off failure and correct any evil which may lie hidden.

The *British Medical Journal* in commenting upon the article draws attention to the fact that "M.D." says nothing about the boys' teeth. "This is to be regretted," says that Journal, "as it is a most important matter, not the less potent because insidious. In itself so often a cause of defective health in childhood, its results not seldom bar the way to more than one professional career; and many parents would ultimately be almost as grateful as their sons, were the extreme value of early and continuous care in this matter more emphatically insisted upon. It is probably no exaggeration to say that as matters stand to-day, the *personnel* of every great school affords almost continued occupation to the dental and next to him the ophthalmic surgeon." With these weighty words from our contemporary we most heartily agree, and we are glad to be to a certain extent, in the position of being able to present to our readers the information asked for by the *British Medical Journal.* As the result of the labours of a number of dentists who examined the teeth of ten thousand children in our Parochial and Industrial Schools it was found that of children averaging twelve years of age more than eighty-five per cent. required dental attention. But these figures though startling show a much better state of things than the statistics obtained from the only public boys' school in which as far as we know, they are kept in a systematic manner, namely, Haileybury. Mr. SPOKES, who has had the opportunity of closely examining the mouths of the Haileybury boys, will shortly deliver a detailed account of his work there, to the Society of School Dentists, of which he is first President; but, in the meantime, he has informed us that his experience is that two per cent. of perfectly sound dentitions among boys averaging fourteen years is as near as possible the figure. Dentists are being requisitioned to attend the teeth of the poor in our Parochial and Industrial Schools, and we hope our public schools will be equally well provided for before long, and the necessary work done in a systematic manner at a most important time in a boy's life. A little work of the right sort at the right time may save an infinity of subsequent trouble, and until the real fount and origin of dental caries can be discovered and annihilated, no effort should be spared in resisting its evil effects on the rising generation. Dental caries also has this advantage over many of the other diseases tabulated, inasmuch that there is every prospect of permanent beneficial results accruing from timely interference.

DEATH FROM CHLOROFORM.—A Miss Wright, of Brisbane, recently expired while under chloroform administered by the doctor for the removal of teeth. Scarcely a month passes without our having to record some similar case. While we have safe anæsthetics at our disposal it is little less than criminal to employ a dangerous one like chloroform.

A TOOTH IN THE LUNG.—The body of Miss Maud Catchlove, of Adelaide, who died recently after a dental operation, has been exhumed, and an examination showed that the two teeth produced by Mr. Thompson, the dentist who performed the operation, were actually those extracted by him. It is not known how the tooth found in her lung, and which caused her death, came to be there.

ASTRINGENT MOUTH WASH.—

Take of

| | |
|---|---|
| Tincture of orris (made by percolation 1 in 4) | 1½ ozs. |
| Lavender water ... ... ... | ½ oz. |
| Tincture of cinnamon (1 in 8) ... ... | 1 „ |
| „ „ yellow cinchona bark .. ... | 1 „ |
| Eau de Cologne ... ... ... | 2 ozs. |

Mix.

Dental Entries at the Medical Schools.—St. Bartholomew's, 1. Charing Cross, 24. St. George's, 0. Guy's 53. King's, 0. London, 0. St. Mary's, 0. Middlesex, 14. St. Thomas's, 0. University, 0. Westminster, 1. Royal Free (School for Women), 0. Birmingham (Mason College) 15. Bristol (University College), 1. Cambridge University, 0. Durham University, 6. Leeds (Yorkshire College), 0. Liverpool (University College), 18. Manchester (Owens College), 18. Sheffield (University College), 0.

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Precautions against Contagion.—Dr. Bulkley warns his brethren as follows:—Considering the well-recognised contagious character from mucous patches in syphilitic mouths, it is remarkable that there are so few instances on record of the infection of dentists, whose fingers are continually bathed in these secretions. It is undoubtedly due to the great personal care of the hands necessary in the profession. Physicians and surgeons have been much less fortunate, and numberless instances are on record where they have acquired chancres on the fingers from mucous patches. It is to be remembered that an abrasion of the surface is necessary for infection, so that these and even hang-nails should be carefully guarded against. Illustrations have occurred where even momentary contact of an abraded surface has sufficed to acquire the disease, even where careful cleansing has taken place immediately afterward ; too great care cannot therefore be exercised in having the hands free from any raw places through which the poison could gain entrance.

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Honorary L.D.S.—At the annual meeting of the Melbourne Dental College Mr. Simpson called attention to the fact that the Council had power to confer the honorary diploma of L.D.S. He thought that this power was injurious to the well-being of the College and lowered the value of the diploma, and he therefore moved that the clause be erased. An animated discussion followed, and eventually the matter was allowed to stand over for a year. We hope Mr. Simpson will persevere in his action. There is always a danger that it might be conferred on those who ought not to have it, and it would tend to lower the status of the diploma and of the College which grants it. Besides the L.D.S. is simply a licence to practise, if a man is already practising who has not obtained it, he does not require it, while if he obtains it without working for it, it is an injustice to those who have worked hard for it.

IMPRESSION MATERIAL FROM WHICH A DIE MAY BE CAST.—The following is given as a composition from which a metal die may be cast as soon as it is dry. Plaster one part, powdered pumice stone one part, and chalk one part. Mix and use the same as plaster.

A DENTIST FOR THE ARMY.—We were very glad to announce recently that a dentist had been requisitioned to attend to the teeth of some of the regiments in Egypt. It is the first step which costs, and this step in the right direction we hope will soon be followed by others. Apart from the extraction of teeth almost nothing is done for the care of the teeth by the army surgeon. While our army medical corps embraces men who are competent in the practice of medicine and surgery, yet the practice of dentistry is so highly specialized, requiring not only a mechanical bent of mind but also a special training in operative work, that there is probably not one of that corps to-day professing a knowledge of dentistry. We are a practical people, and we think that when it is borne in upon the official mind that dentists are badly needed for the services, in course of time they will be supplied.

TARTAR DUE TO ORGANISMS.—Dr. Pierce has made a number of experiments in the past year trying to ascertain whether the tartar upon the teeth was simply a precipitate of the lime in the saliva, or whether its deposition was due to organisms in the saliva. A quantity of saliva placed in a vessel outside of the mouth, although it may be saturated with lime, will not deposit that lime in the vessel, but if we can place in the saliva organisms such as the leptothrix, he was satisfied we can get a deposit on the sides or bottom of the vessel. He believes the deposition of lime upon the teeth is due not only to the fact, which is essential, that there must be lime in the saliva, but also to the fact that we have organisms which are instrumental in its deposition. He took two patients, in whose mouths there was a rapid and profuse deposition of tartar upon the teeth. He asked them to keep their mouths as pure as possible with a strong antiseptic for a limited time. The care exercised in washing the mouth or keeping it saturated with a strong antiseptic without interfering at all with the natural secretion of the saliva from the glands prevented the deposition of calculus on the teeth. That satisfied him that the deposition was not only due to the presence of lime in the mouth, but also to the organisms in the mouth.

CANE SUGAR AND THE TEETH.—There is a common belief that this is injurious to the teeth, and that sugar-candy is positively destructive to them. We consider this is an error. Cane sugar is not only unfermentable before it is changed by the action of the digestive ferments, but it absolutely prevents fermentation. The housewife preserves her fruits and her delicacies by its means, and sugar-cured meats are well known to everyone. If sweets are pure, and are made from cane sugar, they will be harmless to the teeth, and may be recommended in moderation, provided always that the teeth are properly cleaned after they have been taken, as they should always be after eating. It is adulterated sweets that do injury to the teeth. The use of too much sugar is bad for the digestive organs, and through them may act deleteriously upon te theeth, but these organs were never directly injured by pure sugar or candy. The teeth of the negroes on the cane plantations are excellent in quality.

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Lubricant for Plaster Models.—The mixtures, greases and oils usually employed for this purpose have the disadvantage of being sticky or of easily attracting dust. According to Puscher, this drawback is avoided if stearic acid is used instead. Melt one part stearic acid in a glass by immersing the same in boiling water and add four to five parts alcohol (95 per cent). Agitate the clear solution until cold, whereby a thin paste of very finely distributed stearic acid is formed, with which the moulds are coated by means of a paint brush. The spirit evaporates at once and leaves a very thin layer of stearic acid, which admits of readily freeing the cast from the mould.

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Ungenerous Criticism.—Dr. Davis in an ethical paper touches on our duty to our dental neighbour as follows:—"There are various ways of doing injustice and injury to our neighbours even without charging them with incompetency or denouncing them as "quacks." A feigned look of astonishment when scrutinising their work, a significant shrug of the shoulders, or a disapproving shake of the head, will have the effect of undoing confidence in the operations of their former dentist, and sometimes prove more damaging than open denunciations. To ask if the doctor was not in a hurry when he filled their teeth—if the doctor himself performed the operation—if the work was not done by a student; or, if the doctor's eyesight is not failing him, etc., are insinuations that excite suspicion, and convey the idea that the operations have been slighted. Nor does it make things smoother to add in a semi-apologetic manner, that the doctor was considered a pretty fair sort of a dentist once, but unfortunately he is getting old. All this is needless and uncalled for, as it reflects injury on those to whom such references are made, and fills with distrust the minds of those who have received their attentions. To sum up, no good whatever can result from such ungenerous criticism."

"When discontented parties come to us with their complaints, it is clearly our duty to vindicate as far as possible the good standing of our confrères, and at the same time remind our visitors that personal interest and vigilant care on their part is absolutely necessary to escape the consequences of neglect.

"Let us do justice to all others as we would wish justice done to us, and may we never forget that professional courtesies are due to every honourable dentist, and we will be rewarded with happy reflections as well as the good will and esteem of onr professional brethren."

SCHOOL DENTISTS' SOCIETY.—A meeting of the above Society will be held at the National Dental Hospital, Great Portland Street, W., on Friday, November 25th, at 7 p.m. Agenda—Election of Members; Casual Communications; Inaugural Address by the President, Mr. Sydney Spokes. A full attendance is requested, that the most suitable day and time of Meetings may be fully discussed and arranged. W. J. Fisk, of Watford, is Hon. Sec. We print elsewhere the Rules of this Society.

IS A WEEKLY DENTAL JOURNAL WANTED?—Evidently not if the experience on both sides of the Atlantic in that direction go for anything. The *Dental Review* of Chicago, in writing on this subject, remarks:—"In the United States the *Weekly Dental Journal* has had two distinct trials, once in Chicago and lately in Atlanta. Dr. Louis Ottofy, now of Tokio, Japan, was editor of the first journal of this kind, but it came to grief after a few months. The second venture, *The American Dental Weekly*, began in Atlanta, Ga., with Dr. B. H. Catching as Editor-in-chief. After one year it has (for the present at least) suspended publication. During its existence it was bright and newsy, and deserved to succeed. We regret to announce its discontinuance. Whether it will be revived we are not informed. We believe that it is only possible for one such journal to exist in a large city like Chicago, New York or Philadelphia. Such a journal would need a large list of Subscribers and a good advertising patronage. Who will be the proprietor of the next weekly?" It will be remembered that a similar experiment was tried on this side some time ago in the shape of the *Dental Weekly*. This had a short life, and we fear not a very merry one, as we believe at no time did its Subscribers amount to more than 150 in number, and those were obtained at heavy expense by personally canvassing dentists. How they and the advertisers fared when the issue stopped we do not know, but we hope they got their money's worth.

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A Vaseline coating on the glass stoppers and the inside of the necks of varnish or preparation bottles, will admit of the bottles being easily opened, and will keep them free from incrustations of varnish, etc.

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In smoothing the surface of wax plates before investing, by the aid of a flame from a Bunsen burner or alcohol lamp, use a chip-blower to direct the flame instead of a blowpipe—it is easier to control.

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An easy method of removing gutta-percha points from root canals is to roughen the point of an Evans root-canal drier, heat the bulb and pass the point slowly into the canal. Cool the bulb with a wet sponge, and on removing the point the gutta-percha will come with it.

# Abstracts of British & Foreign Journals.

## THREE CASES OF ŒSOPHAGOTOMY FOR FOREIGN BODIES.

By W. Thelwall Thomas, F.R.C.S.,

Honorary Assistant Surgeon, Royal Infirmary; Assistant Lecturer on Surgery, University College, Liverpool.

The necessity for œsophagotomy does not often arise, yet the impaction of an irregular foreign body in the gullet demands the operation. I bring forward three cases, with the object of urging the proceeding as soon as it is discovered that the foreign body (generally a tooth plate) is *firmly* fixed. The operation in itself is, I am sure, far less serious than repeated attempts to drag the foreign body out. Cases have been recorded where the tooth plates have been extracted, with great force, from the œsophagus by forceps or coin catchers, after which the patients have succumbed from cardiac failure or œdema of the glottis.

Brute force will cause extensive laceration of mucous membrane, and even of the muscular tissue, of the larynx as well as of the œsophagus in these attempts, and when chloroform is given no idea can be formed of the damage done. It is more to the patient's advantage to submit early to a clean cutting operation.

The first case of my series succumbed to a serious laryngitis and tracheitis, with heart failure, brought about by attempts made, under an anæsthetic, by strong hands and many forceps, to extract a very large tooth plate. The operation of œsophagotomy was simple and rapid; there was no subsequent leakage or cellulitis, yet the patient died from cardiac failure following respiratory trouble.

The second and third cases were sent for operation as soon as the medical attendants had satisfied themselves, by simple attempts, that the plates were impacted. Their recovery from the operation was so rapid and uneventful that one feels tempted to suggest, as a rule for guidance in these cases, that when a foreign body is found on simple trial with forceps, coin catcher, or horsehair probang to be impacted, it is advisable to perform œsophagotomy as soon as possible, before any ulceration or inflammation has set in.

Case I.—T. N., aged 21. On January 2nd, 1897, at 2 a.m. swallowed a large tooth-plate carrying two teeth. He suffered severe pain. An attempt was made to extract it; this not being successful, he was placed under an anæsthetic, and two or three gentlemen had several trials to dislodge it, still without success. Next day, when I saw him, the teeth were sounded 9½ inches from the gums, and they were very firmly impacted. He was somewhat distressed in his breathing, had a rapid pulse, and complained of a choking feeling. Œsophagotomy was performed in the usual manner, and the hook of the swallowed plate was almost through the œsophagus. An incision sufficiently long to extract it easily was made, and the plate withdrawn. The mucous membrane was sutured with a continuous silk suture, and the muscular tissue brought together by a continuous "Lembert" of silk. A glass drainage tube was employed from the skin to the œsophagus, to drain the operation area, and the skin edges sutured together, leaving of course room for the glass tube to protrude. Cyanide dressings were used. The same evening the patient's temperature being normal, he suffered from serious respiratory trouble, had a very weak and rapid pulse, and although every attention was paid to him he died of cardiac failure on the second day. The plate measured 1½ in. by 1 inch, had one broken edge and a sharp curved hook projecting; carried teeth, and was made of vulcanite.

Case II.—J. T., aged 28, sent by Dr. F. Knowles, of St. Helens. On January 7th, 1898, the man, quite sober, fell asleep late at night in a chair, with his head thrown well back. In half an hour he awoke, feeling great pain in his throat, and missing his tooth-plate, which carried four teeth. He drank some salt and water, experienced great pain in swallowing, vomited, but did not bring the plate up. Dr. Knowles probed for the foreign body and found it firmly impacted. He sent him at once to the infirmary. Probing with a metal-ended probe the plate was struck 8½ inches from the gums. Chloroform was administered and a forceps passed down, when the teeth were found firmly fixed. His head was quickly thrown back over a pillow placed beneath his shoulders, and œsophagotomy performed. The plate could be readily felt, and the œsophagus was incised sufficiently freely to allow of its extraction. Detail of wound treatment as in Case I.

The glass tube was removed on the fourth day, and a small tail of cyanide gauze allowed to rest in the track of the tube. This was removed on the eighth day, and on the fourteenth day he was discharged cured. He was allowed fluid food from the first. His temperature never rose to 100°. The tooth plate, vulcanite, measured 1¼ by 1¼ inch; one edge was broken, and a curved metal hook projected from one side; it carried four teeth.

Case III.—C. W., aged 28, swallowed a metal tooth plate late on April 14th, 1898. Dr. O. H. Edwards, of Widnes, probed and found the plate fixed, and sent him next morning early, to the infirmary. He was in great pain, aggravated by swallowing. The plate was situated 11 inches from the gums, and was readily sounded with metal probang. An œsophageal forceps could only just grasp it but failed to move it. He was anæsthetised and œsophagotomy performed. The plate was with difficulty removed on account of its depth behind the top of the sternum, and it was extremely difficult to suture the œsophagus. Still this was performed as in the other cases, and the wound treated in the same way. Owing to the great depth and the laceration of the mucous membrane which was noticed, caused by the sharp, irregular, broken edges of the metal plate, it was thought advisable to pass an œsophageal tube and leave it in, with the end protruding from the mouth for feeding, through which he was fed for three days, when it was withdrawn. Afterwards liquid diet was allowed, one drachm of boracic acid lotion being given with each meal. The glass drainage tube was removed on the fourth day, and he was discharged cured on the thirteenth. The metal plate was very irregular, had been broken, was without hooks, measured 1¼ by 1 inch, and carried one tooth, another tooth having broken off some time previously to swallowing.

### *Remarks.*

1. A metal ended probang ought always to be used for sounding: gum-elastic bougies will pass a tooth-plate sometimes without producing any satisfactory "clicking" sound.
2. Prolonged attempts at extraction by forceps, etc., ought not to be made: operation is safer.
3. Operate early, before ulceration sets in.
4. Make a clean cut into the œsophagus, sufficiently large to extract the foreign body without lacerating the edges of the mucous membrane.

5. Careful suturing of the œsophagus, as suggested—a method admirably adapted to the bladder after suprapubic lithotomy.
6. The draining of the neck by a *glass* drainage tube, otherwise the anterior margin of the sterno-mastoid covers the deeper parts of the wound and prevents the escape of serum.
7. Using an œsophageal feeding tube if the mucous membrane has been lacerated.
8. Lastly, urging all people with tooth plates to have them immediately repaired when broken—the three cases above recorded having been wearing broken plates—and always emphasizing the necessity for the removal of all dentures when intending to sleep.

*British Medical Journal.*

## HARDENED AND WASHABLE PLASTER OF PARIS.

For the hardening of gypsum, a firm in Heidelberg has taken out a German patent on a process which apparently surpasses all those in existence, and furnishes very satisfactory results. Either burnt gypsum is prepared and mixed with the liquid named below, or else the finished articles of hot gypsum, or of mixtures of gypsum and other bodies are impregnated by painting with a fluid. It consists of a solution of ammonia triborate in water. For this purpose, boracic acid is dissolved in warm water and a certain amount of ammonia is added, whereby a substance really soluble in water and deviating much in its properties from known compounds results. The saturation of the gypsum, or the painting of the plaster articles is carried out into the cold. The objects are subsequently rinsed and dried. The surface becomes very hard after two days and insoluble in water, while the induration in the interior advances more slowly. By means of the fluid described, gypsum floors can be hardened and rendered more durable and impervious to the influences of the weather. Saturating with ammonium borate is said to be especially useful on exterior walls of buildings, etc. Experiments have proved an antiseptic action of the liquid.—*Scientific American.*

# A CASE OF ŒSOPHAGOTOMY FOR IMPACTED ARTIFICIAL TEETH.

By Ludford Cooper, M.R.C.S., L.R.C.P.Lond.,
Resident Surgeon St. Bartholomew's Hospital, Chatham.

Cases of impaction of foreign bodies in the upper part of the alimentary canal are not infrequently met with in hospital practice, but the greater proportion are cases in which the foreign body is lodged in the pharynx, and can generally be dealt with from the mouth. But when they have passed from the comparatively wide pharyngeal chamber into the narrow passage below the cricoid, for example, into the œsophagus, the condition is a much graver one, not only on account of the greater probability of their becoming impacted and therefore presenting greater difficulties in their extraction, but also, should this be impossible, on account of the far greater dangers attending operative measures. Of these cases a certain number of the foreign bodies, for example, coins, are doubtless often dislodged by the passage of a probang or bougie, and passed on into the stomach and intestine, from whence they are later on evacuated, probably without further harm to the patient. But as regards artificial teeth the condition is different, probably owing to the fact that those which get into the œsophagus are either tooth plates which have been broken and present sharp corners, or consist simply of a few teeth, which are connected with their neighbours by sharp points or hooks. In the case I record below the patient had been for many years in the habit of wearing three artificial incisors attached to a plate which had been broken some months previously, and which from motives of economy she had neglected to get repaired.

*History.*—E. R., aged 33, who was not in the habit of removing her teeth at night, woke up early in the morning of October 30th, 1897, with a very sore throat, and found that she had lost her teeth. As she was subject to occasional epileptic attacks she concluded, "as she felt so bad," that she had had one during the night and had swallowed her teeth. She sent for her doctor, who advised her to take nothing but gruel, but she found that swallowing was so painful that she took "hardly anything." Thirty-six hours afterwards her breath began to get short, and this gradually increased for the next twenty-four hours, when she applied at the hospital for admission.

*State on Admission.*—The patient was a healthy-looking woman with a distinctly anxious expression accompanied by slight cyanosis. There was marked stridor, respirations 28, pulse 110, no cough. Laryngoscopic examination showed nothing abnormal. There was distinct diminution of resonance at both pulmonary bases for about three finger-breadths and the breath sounds over this area were very feeble. Elevation of the ribs was fair, but there was little expansion. On examining her throat externally she complained of marked tenderness, much increased by pressure, about one inch below and to the left of the cricoid, at which point there was a distinct fulness to be felt on deep pressure. A bougie passed 7½ inches when it was distinctly stopped. The veins of the neck were abnormally full.

*Operation.*—As there seemed but little doubt that her teeth were firmly impacted in the œsophagus, and were causing laryngeal obstruction, she was advised that an œsophagotomy was necessary, and to this she readily consented. She was accordingly put under chloroform, and I proceeded, assisted by Dr. Holman Weekes, to make an incision about 3½ inches in length, along the anterior border of the left sterno-mastoid muscle, commencing about half inch above the upper border of the thyroid cartilage. The common carotid sheath was then gradually exposed. The sterno-mastoid muscles having been drawn outwards together with the large vessels, and the omohyoid muscle hooked down, the trachea and œsophagus were defined and the former having been pulled over to the right and all venous oozing, which on account of the interference with respiration was of a rather free character, stopped, the foreign body could be easily felt about three-quarters of an inch below the cricoid, bulging towards the posterior surface. A sharp point which had almost penetrated the œsophageal wall could be detected and a vertical incision of about an inch having been made over it, the plate was easily extracted. At the moment of extraction the venous bleeding was well marked, but firm pressure being applied for a few minutes it gradually, as respiration became freer, ceased. The point had almost ulcerated through the œsophageal wall, which was quite rotten, and about a teaspoonful of pus escaped when it was incised, and therefore no attempt at stitching up the gullet wall was made. A drainage tube was inserted from the opening in the œsophagus to the lower end of the wound, what was then stitched up.

*After-History.*—The patient soon recovered from the shock of the operation and expressed herself very grateful for the relief she experienced. She was encouraged to sit up in bed as much as possible, but no attempt at fixing her head was made. She was fed entirely by means of suppositories and nutrient enemata, and she seemed to be doing so well and suffered so little from thirst that no attempt at feeding her by the mouth was made until the sixth day, when she was given a little milk, the greater part of which, however, ran through the tube in her neck. During the first few days the discharge was of a rather free character, but after the fifth day it gradually decreased, and the tube, which from this time was shortened every other day, was eventually removed on the fourteenth day. The wound above the tube healed by first intention, the stitches, twelve in number, being removed on the ninth day. The patient seemed so comfortable and her strength was so well maintained that no further attempt to feed her by the mouth was made until the seventeenth day, when she was found to swallow fluids comfortably, and she has experienced no difficulty or discomfort during deglutition from that time. The wound was soundly healed on the twenty-third day, and she was discharged from the hospital four days later.

*Description of Plate.*—The plate was of irregular quadrilateral shape and measured 1¼ inch from before backwards and about ¾ inch from side to side. It carried three incisors, and attached to the inner of these was a sharp gold spike by which it was connected to the neighbouring tooth. It was obviously this spike which, by penetrating the œsophageal wall, had prevented its further passage to the stomach.—*British Medical Journal.*

## MANIFESTATIONS OF SYPHILIS IN THE MOUTH.

By L. Duncan Bulkley, A.M., M.D., New York.

Syphilis is a protean disease, not only capable of affecting every organ and tissue of the body, but also of imitating, to a greater or less degree very many conditions and states depending on quite other causes. It is therefore no easy task to attempt to make perfectly clear its manifestations in the mouth—for it must be acknowledged at the outset that sometimes the appearances are so bizarre and curious that even the most skilful cannot be certain in regard to the nature of a particular lesion. It may be further stated that in order to diagnosticate syphilis surely it is often necessary to know the history and also take into consideration very many signs and symptoms; it is not, therefore, always possible to consider and judge from a single lesion, whether it be in the mouth or on the skin, or in any other organ. It will be understood, therefore, in what may follow, that the diagnostic points indicated are but relative and partial, although the attempt will be made to indicate the salient points which may be of practical value.

In order to understand the danger from the manifestations of syphilis in the mouth and the means of averting it, a few words must be premised in regard to the disease itself. Syphilis is a specific disease, due to the entrance of a special poison, which multiplies rapidly in the system and can affect every organ and portion of the body. It is by no means necessary a venereal disease, but is constantly being acquired in perfectly innocent manners, which need not be dwelt upon here, except to state that a number of authentic instances are on record, by reliable observers, where it has been acquired in connection with the practice of dentistry; it has happened that both the dentist has acquired it from the patient and patients have acquired it through dental operations from poison, which has been conveyed on instruments or otherwise from one suffering from the disease to another.

Soon after the entrance of the poison the person becomes syphilitic, and for a period is thoroughly permeated with the poison, so that the blood and certain secretions can again communicate the disease. The exact duration of the contagious period of syphilis has never been determined, although it is known that after a considerable time the danger diminishes greatly, and after some years it is not communicable, even though the patient may have some of the late or tertiary signs of the disease, it may be, even in the mouth. The virulence of the disease is also modified greatly by efficient treatment.

During the first year syphilis is certainly very contagious, and operations about the mouth should be undertaken with the greatest caution. During the second year, as well as during the first, and especially in smokers, there are apt to be mucous patches in the mouth which give off a secretion which is abundantly capable of causing a chancre should it find a suitable opportunity. With each succeeding year, especially under proper treatment, the danger diminishes, and there are not many instances where infection has taken place after five years, although the disease is capable of hereditary transmission very many years later, showing that the virus does persist for even a long time.

The sources from which syphilitic poison may be received are four, and as all of them may at times relate to the practice of dentistry they may be mentioned. These are (1) The initial sore or chancre in or about the mouth; (2) mucous patches in the mouth or on the lips; (3) syphilitic ulcerations, and (4) the blood. (1) The chancre. This is not very uncommon on the lips, and at the beginning is often thought to be only an innocent abrasion, or a "cold sore." But it will persist and gradually become a well defined mass, and give off a terribly virulent secretion, often remaining for months, and symptoms of constitutional syphilis will appear. Occasionally a chancre will occur on the tongue, as in the instance of a patient of mine, where the gentleman had been to the dentist to have a roughened tooth filed off; the dentist who did the work was undoubtedly exposed to the contagion, and without properly cleansing his instruments, could have been the means of communicating the disease to others. Chancres are also not very uncommon on the tonsils, and also have been observed on the gums and elsewhere in the mouth.

(2) Mucous patches. These are slightly raw surfaces, of various sizes and shapes, which at one time or another are very apt to appear to a greater or less extent in the mouth in almost every case of syphilis. Mucous patches are a most fruitful source of syphilitic infection, and are the lesions against which special care must be exercised. The secretion from them, whether in a fresh state or dried on instruments, napkins or any articles, gives rise to a chancre and complete infection of constitutional syphilis. Mucous patches differ so greatly in appearance and extent that it is difficult to describe them accurately. When newly developed they are of a redder colour than normal mucous membrane, but later may become of a grayish white; elevated a little at first, they may become depressed by the loss of epithelial covering. They may be in oval patches of various sizes, or in streaks, while sometimes it is very difficult to determine their exact extent. They are always superficial lesions, and often do not cause much annoyance, so that the patient may readily attend to all the duties

of life, and may go through considerable dental manipulation while having an abundant crop of mucous patches on the tongue, lips, or buccal cavity, as I have frequently known to be the case.

(3) Syphilitic ulcerations. These are less likely to be met with in the practice of dentistry, although I have known patients to seek relief for troubles about the teeth when there were syphilitic ulcerations about the mouth, which could give rise to contagion. Generally they are so striking and painful that they would be noticed at once, or the patient would avoid dental work from the pain in them.

(4) The blood. During the earlier stages of syphilis the blood is certainly contagious, and if drawn in any operation it could convey the poison in a cut or injury, or if left on instruments or apparatus, and thus conveyed to another. In my former paper I quoted a very striking case where chancre of the gum resulted from the operation of tooth-drawing; the patient was undoubtedly inoculated by means of blood or disease secretions left on an improperly cleansed forceps.

Such being the sources from which infection can come from the mouths of persons who have acquired syphilis, we may briefly consider some of the details in regard to the methods by which the disease is communicated in dentistry, and the methods of avoiding the danger; first, in regard to the dental operator, and second, in regard to protecting patients. (1) The dental operator. Considering the well-recognized contagious character from mucous patches in syphilitic mouths, it is remarkable that there are so few instances on record of the infection of dentists, whose fingers are continually bathed in these secretions. It is undoubtedly due to the great personal care of the hands necessary in the profession. Physicians and surgeons have been much less fortunate, and numberless instances are on record where they have acquired chancres on the fingers from mucous patches. I myself have had over a dozen thus affected under my care. It is to be remembered that an abrasion of the surface is necessary for infection, so that these and even hangnails should be carefully guarded against. Illustrations have occurred where even momentary contact of an abraded surface has sufficed to acquire the disease, even where careful cleansing has taken place immediately afterward; too great care cannot therefore be exercised in having the hands free from any raw places through which the poison could gain entrance. (2) Guarding patients against infection. It may seem somewhat out of place to speak to such gentlemen as compose this Society in regard to the simple matters of precaution about to be mentioned. But as some may not heretofore have fully recognised the dangers arising from the syphilitic mouth, it is best to err on the safe side, and to briefly present the cautions which come to mind from a pretty full knowledge of the subject, and in doing so it will be necessary to repeat some of what was said on a former occasion.

The secretion from mucous patches, and also from the chancre, is very sticky and adherent, and when dried on an article forms a delicate coat, hardly perceptible. Nothing is known in regard to the length of time during which the virus is viable, but from what has occurred in medical practice it is believed that days, weeks, or perhaps months after an instrument or article has become infected it may again give off the poison and communicate the disease. Simple washing may not be sufficient for proper cleansing, and special care should be exercised if there is reason to believe that there has been particular exposure to syphilitic infection. This can be accomplished by heat and certain disinfectants, antiseptics, or germicides. As in the case of surgery, heat is probably the safest and most convenient disinfectant, and thorough boiling, especially in a slightly alkaline medium, may be considered as an efficient prophylaxis against contagion. I will not take your time in discussing other methods of asepsis, with which all are familiar, but I will only urge that too great thought and care can hardly be expended in perfectly guarding against this poison.

Almost all the articles employed in connection with dentistry could be the means of communicating the disease; for even a blunt plugger which had been in previous contact with a syphilitic lesion, and bearing the poison on its surface, might slip and cause a wound of the soft parts through which the poison on it could be absorbed. But some instruments would be more likely to be the conveyers of the poison than others, and among these may be mentioned burs and files; they are both more liable to retain the poison in their fine serrations, and also to convey it to the tissues by wounds inflicted. Also the articles connected with polishing the teeth; and I well remember, in times past, more than one dentist polishing my own teeth with pumice stone on a bit of wood, which had apparently been used for former patients. Rubber-dams and wedges, if carelessly employed a second time, could also convey the poison. Napkins would probably be efficiently cleansed by boiling.

I have now endeavoured to go briefly over the subject of the manifestations of syphilis in the mouth, and to point out some of the dangers from them to the operator and to other patients, and the methods of avoiding the danger. A few words may be added in regard to the practical recognition of syphilis in the mouth. First it may be recalled that, as was remarked at the opening of this paper, syphilis is capable of imitating many states or conditions dependent on quite other causes ; and there are many alterations of mucous membrane about the mouth other than those of syphilis, with many of which you are undoubtedly familiar. Time and space would fail in an attempt to give any detailed consideration to these, and I must be content with a few suggestive hints. Aphthous sores within the mouth will sometimes be strongly suggestive of syphilis, and, indeed, it is not uncommon to find them in the mouths of syphilitic patients, where the stomach derangement has been caused by the treatment given for the syphilis. Glossitis of various forms and degrees may also exist and be confounded with syphilitic lesions ; the serpiginous form, often called "geographical tongue," will sometimes be very puzzling. In the mouths of smokers, especially, we often get lesions which much resemble the white mucous patches of late syphilis ; this *leucoplakia buccalis* is very apt to come in streaks and on the sides of the buccal cavity, reaching down to the corners of the mouth. The tongue may also be much affected with this disease.

In addition to these superficial forms of mucous trouble we have epithelioma of the tongue or buccal cavity, which often simulates syphilis very closely ; lupus may also affect the gums. Abrasions and ulcerations from sharp or irritating teeth will also be found on the tongue, and may be very suggestive of syphilitic disease.

Thus we see that the diagnosis of syphilis in the mouth may not be an easy affair, and it is necessary when any of these many lesions are found to be extremely careful lest the true nature of the trouble be mistaken and infection occur when least expected, as is usually the case. Hence the necessity of perfect asepsis in connection with dental work.

One word with regard to the connection of the physician with the subject under discussion. I believe it to be the duty of the physician treating syphilis to acquaint the patient with the dangers to which he is exposing others, and if possible to prevent dental work being done, certainly during the early, contagious period of the disease. Should necessity arise for the aid of the dentist, the patient should frankly acquaint him with his condition and the dentist take suitable precautions. Should doubt arise, the dentist should consult the physician in charge of the case. If the physician in charge of a case of syphilis in the contagious period should have occasion to send a patient for dental treatment, he should acquaint the dentist with the dangers involved, just as he would inform the obstetrician, surgeon, or any other medical man who might be exposed freely.

In conclusion, I beg to say that I have not wished to excite unnecessary alarm in connection with the subject under consideration ; but having seen a great number of cases of syphilis innocently acquired, and knowing that in a large share of cases the sources of contagion came from manifestation of syphilis in mouth, I cannot too strongly emphasize the danger and urge most careful attention wherever there is danger that the disease may be communicated from this source of contagion.—*Dental Cosmos*.

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## TO FOLD GOLD FOIL WITHOUT CONTACT OF THE FINGERS.

By Dr. A. G. Weber, Havana, Cuba.

It is certainly known by every careful operator that many unsuccessful fillings are caused by contact of the fingers in preparing the foil for introduction. The writer has successfully pursued a simple mode of procedure in handling gold foil without contact with the fingers which may be new to many, and which is as follows : The book of foil is held in the left hand and opened to the first leaf, the right half of the book is slightly raised so that the outer edge of the sheet of foil nearest the right hand will fall, with the help of a little shaking, inward, so that the two edges will be approximated at the central fold of the book, which is then closed on the folded gold and pressed into contact with the fingers passed over the outside covers of the book. The same process is repeated until the leaf of foil is folded to the desired number of thicknesses. The strip of folded foil can then be cut into strips the desired width with shears.

To prepare gold and tin for cohesive working take a whole or half sheet of gold foil and anneal on mica, do the same with a half or quarter leaf of tin and anneal carefully in proportion to the degree of heat the tin will bear without melting, then fold the tin strip inside the leaf of gold foil so that the gold completely envelops the tin to an equal thickness on both sides.—*Cosmos.*

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## PLASTER *versus* COMPOSITION.

The two great essentials in plate work are to have a good impression and a correct articulation. It is well known that mouths soft and flabby are difficult to fit in a satisfactory way. Dr. Chupein, in *Dental Office and Laboratory*, says plaster is the wrong material to take impressions with in such cases, and his paper presents some interesting thoughts on this line. We give below an extract as follows:—

"At one time I thought that plaster of Paris was the only material fit to take an impression of the mouth. I regarded it as the *sine qua non* for this purpose. So wedded was I to this material that Dr. Staples, of Texas, criticised me as "*An all plaster crank.*" My faith in plaster has not produced *a total* revolution by any means, but I must admit that in edentulous mouths, both upper and lower—especially the latter, modelling compound yields an impression, a model from which is vastly superior to an impression taken with plaster of Paris.

But in the use of modelling compound the case must suit the material. Wherever the mouth is at all flabby, the front part of the gum soft or flaccid, no adhesion can be obtained from a model of such a case when taken with plaster of Paris. These soft parts *must* be pressed by the plate, as they are pressed by the impression. In the lower jaw, too, we know that it is next to impossible to obtain an impression of the gum which lies next to the roots of the tongue, on account of the integuments which fill the mouth at these places

# Reports of Societies.

## STUDENTS' SOCIETY, NATIONAL DENTAL HOSPITAL.

The last monthly meeting of the above Society was held on Friday, October 4th, 1898.

In the unavoidable absence of the President (Dr. Pare) Mr. Harry Rose took the chair.

The Hon. Sec., Mr. Edward Thorne, read the minutes of the last meeting, which were confirmed.

The Chairman gave the usual welcome to visitors present·

Mr. G. W. PRIESTLEY was proposed a member of the Society, to be balloted for at the next meeting in December.

The following gentlemen were balloted for, they being nominted at the last meeting :—Messrs. N. Black, B. G. W. Clench, V. C. Mulvey, L. Levien, T. Stephenson, and H. Smyth ; the result being 16 votes to 2.

In respond to the Chairman's invitation for casual communications,

Mr. FRANK FARMER showed a patient with a fractured mandible, wearing a splint, the advantages of which Mr. Farmer explained, the members afterwards examining the case themselves.

The splint was made of metal, struck up to fit approximately over the whole of the teeth, from bicuspid to bicuspid, the splint being fixed in position with cement, the result being a very little raising of the bite, the patient could talk and masticate with perfect freedom, and the splint would be kept thoroughly clean.

In reply to some questions, Mr. FARMER explained that he took the impressions in gutta percha, and that in taking the impression he endeavoured to get the fractured parts as nearly as possible to their normal position. The advantages of this method were very apparent, by the models Mr. Farmer kindly showed.

Mr. FARMER also showed a few specimens from his museum of interesting models, mostly dealing with supernumerary teeth, the cases connected with which came under his care in connection with the Schools Committee of the British Dental Association.

Mr. J. S. FAIRCHILD showed models of a case with the early eruption of the second permanent molars. No other communication being forthcoming, the Hon. Sec. announced that the Council had decided to have a dance in January, and a Smoking Concert in February, and that a General Meeting would be held on Tuesday, Nov. 22nd, at 7.30 p.m. to elect officers and committees for same.

The Chairman called upon Dr. MAUGHAN for his paper on "Professional Etiquette," which is published at page 1016.

At the conclusion of which the Chairman, Messrs. S. Rose, F. Farmer, and C. Thorne spoke. Dr. Maughan replied to questions asked him.

A vote of thanks was proposed by Mr. S. Rose, and seconded by Mr. Tattersall. The proposition was enthusiastically carried.

# Dental News.

## SOCIETY OF ANÆSTHETISTS.

The sixth annual meeting of the society was held at 20, Hanover-square, W., on October 20th, the President, Dr. Dudley Buxton, being in the chair. The reports of the council and treasurer described the condition of the society as flourishing. The following officers for the ensuing session were electsd :—President : Dr. Dudley W. Buxton. Treasurer : Mr. G. Eastes. Members of Council : Mr. Edgar Willett, Mr. E. F. White, and Mr. Sydney Rumboll (Leeds). Secretaries : Dr. R. Turle Bakewell and Dr. E. H. Grant Morris. Auditors : Dr. R. Probyn-Williams and Dr. Mc Cardie (Birmingham).

The President proposed votes of thanks to Mr. Joseph White, who retired from the post of treasurer on account of illness, and also to the ex-secretary, Mr. E. A. Starling, which were carried unanimously.

At the conclusion of the formal business a dinner attended by the members and their guests afterwards took place at Limmer's Hotel, Conduit-street, under the chairmanship of the President, Dr. Dudley Buxton. After the usual loyal toasts Mr. Howard Marsh proposing the toast of the evening, "The Society of Anæsthetists." He said that the great improvements in modern surgery had been produced by the introduction of anæsthetics and by the labours of Lord Lister. Anæsthetists were perhaps specialists, but they must also be good physiologists and pathologists, and must have a good knowledge of clinical medicine, whilst many were admirable surgeons and often able to give valuable hints to the operator. Moreover, they seemed always amiable, always ready to help to their utmost and in a way which made surgeons very thankful. He was pleased to see several lady anæsthetists also present that evening.

The President, in replying for the society, said that anæsthetists were peculiar in that they had few if any opportunities of seeing each other at work. It was therefore of peculiar advantage to them to have a society such as the Society of Anæsthetists, which enabled them to tell one another their special methods, their difficulties, and their failures. These last were perhaps the most instructive. The society was extremely flourishing and had taken a step which he thought would greatly extend its benefits. He referred to the first publication of the Transactions of the society. In this way they had been able to focus their work and supply a ready means for referring to the valuable papers, discussions, &c., which had been given during the year. He referred to the accord between surgeon and anæsthetist which robbed the duties of the anæsthetist of their grimmer side and aided him on the many occasions when he had, as it were, to dispute step by step with possible catastrophe.

Mr. George Eastes proposed the toast of "The Visitors," which was replied to by Professor Schäfer.

The health of the President was proposed by Dr. Silk and drunk with musical honours.

During the course of the evening Miss Cherry sang with much feeling, Mr. Schartau rendered some humorous songs, and Mr. Churcher recited and gave some amusing sketches.

## MEDICAL PRACTITIONERS AND UNQUALIFIED DENTISTS.

At the meeting of the Council of the British Medical Association on October 12th, a resolution from the Dundee Branch with regard to the administration of anæsthetics by registered medical practitioners for dental operations performed by persons not registered under the Dental Acts was considered. The resolution embodied a copy of a resolution adopted by the Dental Committee of the General Medical Council, which had been transmitted to the Dundee Branch by the Registrar of that Council. The resolution was as follows :—

"That the members of the Dental Committee agree with the opinion expressed by the Executive Committee that the practice referred to in Dr. Buist's letter is most reprehensible, and recommend that if a charge of "covering" in connection with such administration of anæsthetics were brought before the General Medical Council it should be entertained and investigated.'

The Council of the Association endorsed the action of the Branch, and fully agreed with the opinion expressed by Executive Committee of the General Medical Council that the practice referred to is reprehensible. As we are informed that certain members of the Association have felt doubt as to the proper course to be taken in this matter, we think it well to draw attention prominently to the opinion of the General Medical Council and of the Council of the British Medical Association.—*British Medical Journal.*

## ACTION FOR MALPRACTICE.

At Blackburn County Court, on October 24, before Judge Coventry, Mary Ann Kay, a married woman, sued Joseph William Butterfield, chemist, Market-street, Darwen, for £20, damages for injuries sustained in consequence of alleged carelessness and negligence in extracting some of her teeth. Mr. Riley, of Blackburn, appeared for the plaintiff; and Mr. Broadbent, of Darwen, for the defendant.

Plaintiff stated that in April last she suffered from toothache and visited defendant's shop. She told him she wanted to have three teeth extracted, two of which were in front of her mouth and one at the back. He examined the teeth, and pointed out that the two front teeth were only slightly decayed and suggested that she should let them remain. Plaintiff, however, expressed a desire to have all three taken out, and he extracted them. During the operation he used three different syringes for the purposes of injection, apparently because the first two syringes were clogged. He told her to bathe her gums with alum-water. She became ill, and her husband noticing a white matter on her gums he acquainted defendant with the fact. Defendant told her husband to bathe her gums with alum and Condy's fluid. Witness, however, grew worse, and at the end of twelve days called in Dr. Wallers, who attended her for nine weeks, and a small portion of the exposed bone had to be removed.

Cross-examined, plaintiff said she stopped bathing with alum-water, and went out to the "fair" while she was ill without any other covering but her hat.

Dr. Wallers said he found plaintiff suffering from septic poisoning from the wounds in her mouth. This might have been caused by the use of unclean syringes after extraction.

Cross examined, witness said the poisoning might have resulted from several other causes besides that of unclean instruments. He could not be sure of the cause, as twelve days elapsed after she had had the teeth extracted, before he saw plaintiff. In answer to his Honour, witness said he did not find any wounds on the gum which had been expressly caused by the needle of a syringe.

Mr. Broadbent asked whether he had a case to answer, and whether the Judge would say there had been any lack of skill on the part of the defendant.

His Honour held that there was no lack of skill, and without calling upon the defence said there was no evidence to show that the woman's illness had arisen from the use of an unclean instrument by defendant or from any carelessness or negligence on his part. He therefore nonsuited plaintiff.

Mr. Broadbent said his client had gone to considerable expense in preparing a defence, and asked for costs for two medical witnesses and three others. These costs His Honour allowed.

## THE DENTAL HOSPITAL OF LONDON.

The Annual Dinner of the Staff and Past and Present Students will be held on Saturday, the 3rd December, at the Hotel Metropole (Whitehall Salon) under the presidency of Mr. Storer Bennett. Gentlemen, either now or formerly connected with the Hospital or Medical School, who may, through inadvertence, not have received special notice, and who desire to be present, are requested to communicate with the Dean at the Dental Hospital, 40, Leicester Square.

## GEORGE PEARSON, LIMITED.

Registered on October 31, by Waterlow and Sons, Limited, London Wall, E.C., with a capital of £2,500 in £1 shares. Object to acquire and carry on the business of a chemist, druggist, dentist, and general dealer, carried on by. G. Pearson, Brierley Hill, Staffordshire. Registered without Articles of Association. Registered office: 52, High Street, Brierley Hill, Staffordshire.

## JOHN E. EDINGTON, LIMITED.

Registered on November 1st, by T. P. Hull, 22, Chancery Lane, W.C., with a capital of £500 in £1 shares. Object, to acquire certain property at 35, Watson Street, Birkenhead, belonging to J. E. Edington, and to carry on the business of chemists, druggists, dentists. patent medicine vendors, &c. The first directors—to number not less than two nor more than seven—are to be nominated by the subscribers. Qualification, £1.

## RULES OF THE SCHOOL DENTISTS' SOCIETY, 1898.

### LIST OF OFFICERS.

*President.*—SIDNEY SPOKES, M.R.C.S., L.D.S., Eng. *Treasurer*—VERNON KNOWLES, L.D.S., Eng. *Council*—A. E. BAKER, M.R.C.S., L.R.C.P., L.D.S., Eng.; W. T. ELLIOTT, L.D.S., Edin.; W, M. FISHER, L,D.S., Eng.; R. E. NICHOLLS, L.D.S., Eng. *Hon. Secretary*—W. J. FISK, L.D·S., Edin., Street Lodge, Watford, Herts.

### RULES, 1898.

*Objects.*—1. The objects of the Society are (1) mutual assistance in promoting School Dentistry, and (2) the holding of meetings for the consideration of all subjects connected with the special work of School Dentists.

*Constitution.*—2. All present or retired School Dentists or Dental Surgeons of Children's Hospitals are eligible for election as Members of the Society, subject to Rule 16.

*Honorary Members.*—3. Distinguished persons known to interest themselves in the objects of the Society are eligible for election as Honorary Members.

*The Council.*—4. The general Management of the Society shall be vested in a Council, consisting of the Officers and four Members of the Society.

5. The Officers shall consist of a President, President Elect (who shall act as Vice-President), Past-President, a Treasurer, and a Secretary.

6. The Election of the Council shall take place at each Annual General Meeting (except in the case of a vacancy arising from any cause, when the Council shall fill up such vacancy), and shall be by ballot, out of names duly proposed and seconded. All the Officers shall be eligible for re-election.

7. The four Members of the Council shall retire in rotation, one at each Annual General Meeting, and shall not be eligible for re-election for one year.

8. The Secretary shall keep the records of the Society, have the management of the correspondence, and shall arrange with the President concerning the papers to be read at the Meetings.

9, The President, Secretary, or two Members of the Council shall have the power of calling a Meeting of the Council, or a Special General Meeting of the Society.

*Meetings.*—10. The Annual General Meeting shall be held in London. There may be one or two other General Meetings in the course of the year, the times and places to be arranged by the Council.

11. The Secretary shall call a Special General Meeting on receiving a requisition to that effect signed by six Members of the Society.

12. Members shall receive at least 14 days' notice of each Meeting, and the circular convening it shall specify the papers to be read and the business to be transacted.

13. Each Member may introduce two visitors, who may take part in the discussion.

14. The President shall determine what subjects may be discussed at any Meeting other than those placed on the notice convening the Meeting.

15. The order of proceeding at General Meeting shall be as follows:

Chair taken. Minutes of last Meeting.
Reports of Council. Correspondence.
Election of Members. Papers read.
Discussions on Special Subjects, to be determined by the President.

*Election of Members:*—16. A Candidate for Election as a Member shall be proposed and seconded by two Members, and shall forward the Secretary a paper, signed by his proposer and seconder, setting forth his name and residence, and the appointments that he holds, or may have held, and certifying that he conducts his practice in such a way as would render him eligible for Membership of the British Dental Association.

17. The Election of Members shall take place at any Meeting of the Society, or of the Council, and shall be by ballot; no Candidate shall be declared elected unless he shall have in his favour three-fourths of the total number of votes.

*Finance.*—18. The Annual Subscription shall be Five Shillings, payable in advance at the Annual General Meeting.

19. The Treasurer shall collect and account for the Subscriptions, and all moneys shall be banked in the name of the Society and Cheques signed by the Treasurer and Secretary.

20. If any Member's Subsceiption be more than a year in arrear his name shall be liable to be erased from the List of Members.

21. The Accounts shall be audited by two Members appointed by the Society for the purpose, and shall be presented at the Annual General Meeting.

*New Rules.*—22. Any Member wishing to propose an alteration in, or any addition to, the Rules, must give notice thereof to the Secretary, in writing, at least three weeks previous to a Meeting.

23. No alteration or addition to the Rules shall be valid unless two-thirds of those present at the Meeting vote in its favour, and it be confirmed by a similar majority at the next General Meeting.

*Removal of Members.*—24. Any Member desirous to withdraw from the Society shall signify the same by letter to the Secretary.

25. Whenever there shall appear cause, in the opinion of the Council, for the removal of a member from the Society, a statement of the circumstances shall be prepared by the Council and submitted to the Society; on the question of such removal being put to the ballot and four-fifths of the Members present voting for it (five at least being present) the Chairman shall declare such person removed from the Society.

## UNREGISTERED DENTIST CASE.

### Atkinson *v.* Selvey.

This was an adjourned case which was part heard at the last Court, in which Henry Atkinson, surgeon dentist, Lonsdale Street, sued A. W. Selvey, dentist, 27, Cecil Street, for £15 damages for breach of contract in leaving his employment without notice. Defendant counterclaimed for £3 wages for overtime. At the previous hearing Henry Atkinson had admitted that his real name was Thomas Henry Atkinson. His father, Henry Atkinson, was registered, and the business in Lonsdale Street was a branch of the father's business at Kendal. There was a written agreement as to the business between him and his father, and he could produce the agreement. His Honour had thereupon adjourned the case until now for the production of the agreement.

Mr. Edwards was for the plaintiff: Mr. Broughton was for the defendant.

Mr. Edwards now said there was no agreement. Nothing was ever settled; it was only talked about.

His Honour: Do you expect me to believe the plaintiff now? You remember what he swore. He swore there was an agreement in writing.

Mr. Broughton said he had not yet finished cross-examining the plaintiff, so the plaintiff Thomas Henry Atkinson was recalled and deposed that he was 34 years of age and was born in Liverpool. When he lived at home he used his name, Thomas Henry Atkinson, to distinguish his letters from those of his father, Henry Atkinson, but since they had not lived together all his correspondence had been in the name of Henry Atkinson.

Mr. Broughton: Have you not held yourself out to the public as being the owner of this particular business?

Plaintiff: Certainly I have not.

Mr. Broughton: Are you paid by salary?

Plaintiff: Yes, and commission.

Mr. Broughton: What salary?

Plaintiff: £2 10s. a week, and from 10 to 20 per cent. on all takings.

Henry Atkinson, surgeon dentist, Kendal, father of the plaintiff, deposed that what the plaintiff had said about the Lonsdale Street business was correct. He (witness) was registered. Three years ago the British Dental Association made an attempt to penalize his son.

Cross-examined by Mr. Broughton: An agreement was at one time prepared, but he tore it up because of a little disagreement with his son at the time. He had looked for the agreement at Kendal and Lancaster, but could not find it.

His Honour: Why did you look for it if you tore it up?

Witness said he only remembered having torn it up two or three days ago. He once had the defendant in his service at Kendal, but sent him about his business very quickly.

For the defence Mr. Broughton said the plaintiff had fabricated a tissue of lies.

The defendant Selvey was then called. He deposed that T. H. Atkinson engaged him by correspondence in Worcester at £3 10s. a week, but when he reached Carlisle on February 20th, Atkinson said he could only pay £3 a week. He was to have every other Thursday half holiday, but did not get it after Mr. Dennis, the other assistant, left. He had worked 12 days overtime. He left without proper notice because he could not get two or three hours' rest that particular day because he had had more drink than usual the Sunday before. He had never seen Henry Atkinson, the father, on the premises. A week's notice was the practice of the profession throughout the world. The week he left he had instructions to go to Dumfries and Wigton, but to close the Dumfries place, as it did not pay.

His Honour, in giving decision. said he could not put the slightest reliance on the evidence of the plaintiff and his father. He gave judgment generally for the defendant Selvey, with costs.

## Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

### DENTAL REFORM.

*To the Editor of the "British Journal of Dental Science."*

Dear Sir,—The Dentists' Act was passed to protect the public from quacks, and so that no injustice should be done, everyone then practising was registered. Now, if people can still practice without examination, why should all have been registered at the time the Act was passed? Although we have now a larger number of qualified dentists, still the number of quacks increases to a larger extent,—at least this is the case in the provinces, and as the line of demarcation between a qualified dentist and a quack dentist, is not so marked as the line between a qualified doctor and a quack doctor, the majority of the public cannot make out the difference until they are told, and then they ask what earthly good the Dentists' Act is at all.

The public are beginning to tell the profession that they (the public) want better protection, and if the B.D.A. is not going to set to work for the much needed and long talked of amendment to the Dentists' Act, it is high time some one else did, and an appeal for funds for such a purpose would meet with a ready response.

The question of vested interests cannot be raised by those who are illegally practising dentistry owing to the fact of all in practice being registered when the Act was passed. Some one may say, "What is to become of them?" What has become of the unqualified doctor's assistants is my answer. If we get an amended Act these men must, if competent, take situations as mechanical assistants, if they are not competent, everybody is well rid of them and they must seek other employment: perhaps some might qualify themselves by going through the curriculum.

At present our Colonies are ahead of us, but a well worded amendment to our Act would at once place dentistry in the front rank of the professions, and at the same time effectually safeguard people against quackery.

I am, Yours truly,
L.D.S.

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*To the Editor of the "British Journal of Dental Science."*

Dear Sir,—I see in your Editorial Notes for November 1st., a short paragraph headed "The Microbe Theory," which attracted my attention since a case of out and out belief in this remedy was under my notice Of course, when I heard of it I was greatly amused, but my informant was taken aback rather, so, for fear of hurting his feelings, I heard his explanation which began to get interesting when he gave me for inspection three specimens which he had extracted from a youth who had been suffering much from toothache. This is the remedy as nearly as possible in his own words:—

"Take twopenny-worth of Henbane seed and some *red hot coals.* Throw the seeds on it, and take a clean basin, invert it, and hold it over the smoke caused by the burning seed. When the fire has burnt out fill up the basin with clean boiling water, and hold the mouth wide open over it for just a minute or so. Then look carefully on the surface of the water and you will and those animals." He adds that the tooth *must* be aching or none will appear.

When I saw them the specimens, after having first been caught in the boiling water (which must have taken all the life out of them if they ever had any at all), had been kept for over a week in the same water, so that it was very difficult to judge whether or no they were ever alive, much less where they came from. Though not for one moment supposing that they came from the teeth (or even from the mouth for all that), yet they came from somewhere, and where and how it would be interesting to find out. The man who showed me the "grubs" solemnly assured me that he had cured people in this way two or three times and promised when he got another "patient" he would be pleased for anyone to be present and examine the "animals" microscopically, as soon as they appeared. This investigation would at any rate afford an evening's amusement which perhaps others would like to try.

The credibility with which such superstitious remedies are received by the poorer classes is really marvellous. Most likely there are others which your readers may know of. It would be well if they would give others the benefit (if there would be any) of their knowledge in this direction.

I remain, yours sincerely,
W. A. K.

## NATIONAL DENTAL HOSPITAL.

The Entrance Exhibition of £15 has been awarded to Mr. B. G. W. Clench.

## APPOINTMENT.

Bruce Stevenson, L.D.S., Glas., appointed Dental Surgeon to the Hospital of St. Francis.

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

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# PRESIDENTIAL ADDRESS.*

By Sidney Spokes, M.R.C.S., L.D.S. Eng.,
Dental Surgeon to University College Hospital.

Gentlemen,—Allow me in the first place to express my thanks for your good will in asking me to address you as the President of the School Dentists' Society. I was glad of an opportunity to do anything I could for such a Society, but I fear I shall ill repay your kindness by an inadequate address.

As an outcome of the general advance made in recent years in the practice of Dentistry one must have been prepared to find that increased attention would be paid to the value of systematic care of children's teeth. In other matters connected with the welfare of the Family, and the advantage to the State generally of the good health of its individual citizens, it has been recognised that thoughtful care bestowed upon the young brings its own economic reward. Legislation for mental training and education, and the regulations of child labour, are instances which show a phase of the modern idea that the future man must be scientifically developed in the Nursery and the School. But an economically healthy nation will be also a happy nation in proportion, and anything which tends to maintain the equilibrium of health must therefore be for the good of the Race. The Dental Profession may justly claim to do its share in promoting such a consummation, but we also must not overlook the inhabitants of the Nursery and the School. Very many of the troubles we are called upon to deal with in the adult would never occur if proper supervision and treatment were provided for the young. Now although everyone who knew anything of the subject in past years was well aware that children's teeth were generally bad, there were no reliable facts which could be referred to. But a few years ago, after some preliminary work and papers by such men as Messrs. Fisher, Gaddes, and Cunningham, a School Committee was appointed by the British Dental Association to acquire a more exact knowledge of the condition of children's teeth at various ages. And it was thought that by means of the facts thus acquired it would be possible to show "the disabilities under which children frequently suffer in their growth and development, and the important bearing this condition has upon the future health of the individual." The children of a large number of Parochial, Industrial, and other Schools have been examined, but at present there are not, I believe, any returns from the ordinary Board Schools. However, considerably over 10,000 mouths were examined and the condition of each tooth marked upon a chart. Apart, then, from other interesting facts recorded we are now able to say what proportion of teeth in such a class of children are carious, how many could be saved, and how many require extraction. Further, we can inform the authorities having charge of such children that the figures show that less than 15 per cent. of such boys and girls (of an average age of 12 years) do not require some treatment for decayed teeth. The very large majority, therefore, demand skilled attention.

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* Delivered before the School Dentists' Society, Nov. 25th, 1898.

So that, incidentally, this collective investigation has been the means of drawing the attention of authorities to the very unsatisfactory state of things proved to exist; and at the risk of introducing the personal element I venture to narrate an experience of my own. When Mr. Denison Pedley and I applied for permission, some years ago, to the Board of Management of the Central London School District for permission to examine the children under their charge, our request was granted on the condition that we supplied a report. Now at that time, although no doubt there were already dentists appointed to some schools, there was very little done besides extractions; and curiously enough the Medical Officer of the School I am alluding to had himself reported that special dental treatment was necessary for the children under his care. He is a gentleman of many years' experience, and took much interest in our investigations, and when, amongst other things, we found that there were more than 1200 permanent teeth which could be saved by conservative treatment the Medical Officer's views received support, and the Board were, presumably, impressed. We finished our Report by some "Observations and Suggestions," and as this was a new departure, and the results important, I venture to quote to you, as a matter of history, what we said.

"There is an increasing recognition of the importance of a systematic care of the teeth, apart from any æsthetic consideration. In the case of children, who during the growth of the body have not merely to maintain nutrition, it is surely a matter of urgency that all the organs of digestion should be kept in a state of functional integrity, and if, as seems to be the case, diseases of the digestive tract are increasing, it is evident that any departure from the normal dentition places the child, and the future adult, at a disadvantage. Instead of waiting until a child suffers pain, and thus directs attention to a decayed tooth, it is far better for both patient and operator that the earliest appearance of caries should be noted, and the progress prevented by a regulated system of inspection and prompt treatment. Under such circumstances dental disease and the necessity for painful operations become reduced to a minimum, and at the same time the function of mastication is retained in accordance with what is now recognised as the most beneficial practice. Referring once again to the figures, we would point out that 766 children have between them 3,357 unsound teeth, 1,222 of which are permanent teeth requiring filling. This points the way so clearly that we have no hesitation in recording our opinion that a duly qualified Dental Surgeon should be appointed to your School. We believe that before long all bodies charged with the care and welfare of children will recognise the benefit of skilled attention being paid to the teeth, and although our work has been primarily carried on for the accumulation of statistics, we shall feel glad if the facts we have laid before you should enable the Board of Management to set the example."

The Board had ignored the recommendations made a few years before by their Medical Officer, but they now decided to appoint a Dental Surgeon, and I was asked to become a Candidate for the post. Although I had not contemplated such a thing, it seemed a favourable opportunity to continue one's investigations, and to attempt to carry out personally the recommendations we had made. I may mention, incidentally, and as a matter of interest, that whilst the Board did not estimate the services of the new dental officer at so high an amount as was recommended, they yet willingly sanctioned an increased amount for the necessary outfit and appliances. For my part I arranged to give five hours every Saturday, and in the course of five years managed to get the following results:—

5812 inspections of Mouths, with charts; 2621 extractions of temporary teeth or their remains, 80 stoppings in temporary teeth, 519 extractions of permanent teeth, 1405 stoppings in permanent teeth, 269 cases of scaling, and 46 regulation cases.

I may, however, state, that I gave more than the stipulated time, and that it is my opinion that no one should undertake such an appointment who does not take a personal interest in such work. I will not dwell more upon this except to say that I published a paper on "Dentistry in District Schools," which may be found in the *British Journal of Dental Science*, for Oct. 2nd, 1893. In this I ventured to prophesy the formation of such a Society as we now have.

Since then many similar School appointments have been made upon the same lines, and the Local Government Board has now issued a series of suggested Rules for Boards of Guardians to adopt. Inasmuch as the sanction of the Local Government Board is required for such appointments, this action is important.

More recently I have had an opportunity of carrying out somewhat similar work in one of our big Public Schools, and of making some very interesting comparisons. Nearly all the Boys are over 13 years of age; their mouths are carefully examined when they arrive, and the actual condition of the teeth is noted on a chart. A copy of this is sent to the parent or guardian with a covering letter from the Head Master, calling attention to what is required, and requesting that it may be attended to before the Boy returns next term.

I give you some results of such an examination of 560 Boys of an average age of 13 years and 7 months The figures refer only to the teeth of the Permanent Dentition. 701 of these were already lost; 1778 had already been "stopped," and 1743 required "stopping." 13 had sound dentures, but 10 of these were in boys under 14 years, several of whom had not yet erupted the bicuspids and second molars. 71 had been made "artificially sound" by extractions and stoppings. Some of these had foul mouths from abscessed temporary teeth.

Not long ago a doctor inserted in *The Times* the results of a careful physical examination of every new boy admitted at the beginning of each term to one of our great public schools. These observations were startling, and emphasized the fact that disabilities of early life originate and are too often overlooked and neglected during the years spent in the nursery and the preparatory school. The doctor considered that his statistics offered a striking commentary upon all the affectionate care and thought which are lavished upon the embryo public school boy during his earlier years at home. The *British Medical Journal* in commenting upon the doctor's records regrets that there are no details as to defective teeth, and says ;—"This is a most important matter, not the less potent because insidious. In itself so often a cause of defective health in childhood, its results not seldom bar the way to more than one professional career ; and many parents would ultimately be almost as grateful as their sons were the extreme value of early and continuous care in this matter more emphatically insisted upon. It is probably no exaggeration to say that, as matters stand to-day, the *personnel* of every great school affords almost continuous occupation to the dental, and next to him to the ophthalmic surgeon." These remarks fully bear out the statement in the Head Master's letter, above referred to, that "there is no doubt whatever, that much ill health and pain, and great waste of time and money result from the boys' general indifference to this department of hygiene."

I do not know of any other Public School where the question of teeth is dealt with in such a systematic way ; perhaps some of you can enlighten me, but if my surmise is correct, then I think the admirable example set at Haileybury College is one that may well be imitated.

The wishes of Canon Lyttelton that nothing should be left undone to promote the Boys' welfare, have been ably seconded by Dr. Horace Savory, the Resident Medical Officer, and I cannot do better than read to you a letter I received the other day.

Haileybury, November 16, 1898.

Dear Mr. Spokes,

I am sending you a few lines on the question of School boys' teeth, which is, in my opinion, a most important one. In 1892, the first year of my residence at Haileybury, the teeth of 494 of our boys were inspected by a dental surgeon, and amongst other defects it was found that as many as 1821 teeth required fillings. In the great majority of these cases the boys and their parents were in ignorance of the defects or indifferent to their consequences; so with the object of calling parents' attention to the matter, a report was made and they were requested to have their sons' teeth set in order. Further, each new boy's guardian, amongst other medical queries, was asked if the boy's teeth were in good condition. I feel sure that the prominence given to this subject has produced excellent results, and once at least during his school career, nearly every Haileybury boy has his teeth put into a condition of artificial soundness.

As Medical Officer for the last 7 years, I have been called upon to put temporary dressings in some hundreds of teeth, but I seldom now see the shocking condition of dentures that were common in 1892. In going through my notes I find that during the six years, 1892-97 inclusive, I found it necessary to admit 36 boys as in-patients to our Sick Hospital, suffering from Alveolar Abscess, Periodontitis, Dental Neuralgia from caries, and other dental troubles; thereby 201 days of school work were lost to them. This takes no account of the large number of boys who lost time from toothache, but were not sufficiently ill to demand in-patient treatment.

Quite a large number of boys have had their examinations interfered with by dental troubles, and a recent case of failure in the Woolwich Competitive, I firmly believe was caused by a fortnight of dental neuralgia.

There are numerous schoolboy ailments which are traceable to defective teeth; for example, some cases of indigestion, gastric catarrh, diarrhœa, adenitis, neuralgia, sapræmia, etc.

Amongst others I was particularly struck by one case which I honestly believe was all due to the constant swallowing of small quantities of pus from two carious and abscessed molars. The patient was a sallow unhealthy-looking lad with foul breath, coated tongue, tympanitic and gurgling abdomen, constantly suffering from diarrhœa, with some elevation of temperature. There was no evidence of organic mischief, except the alveolar abscesses, but a London physician thought he had a form of typhoid, and considered him too ill for extractions under an anæsthetic, and did not think he would live long. His condition continued for some months, but subsided rapidly after the molars were extracted, and the patient has been in good health ever since. I am sure that the Public School period from 13 to 19, is a most important one in the life history of the teeth, and regular treatment then, has not only its immediate good results, but is most educational to the schoolboy patient in calling attention to the importance of his dental organs.

As Medical Officer of a Public School, I am thoroughly impressed by the value of the services of my dental colleagues, and I can only wish your Society of School Dentists every success.

Yours sincerely,
HORACE SAVORY.

Now, in my former work at the District School, and also, and more especially in the latter at Haileybury College, I found myself confronted by certain ethical, professional and dental considerations, and frequently felt that I should like to discuss them with other men similarly situated.

I have already mentioned the increasing number of appointments being made in the poor-law and other schools. It would be amusing if it were not so serious a matter, to read some of the remarks and suggestions made by some members of Boards of Guardians, when the question of appointing a dentist is brought up. There is considerable risk that the appointments may often leave much to be desired from the point of view necessarily taken by those who know what is required. We can only hope that the Local Government Board will be able to bring sufficient influence to bear in order to ensure that their recommendations will be carried out.

But for the present moment, gentlemen, I am only anxious that you will connect the remarks I have made about School Dentistry with the necessity that exists for such a Society as ours.

Instead of each one being content to work in his own little path, probing more or less in the dark, and only dimly conscious that some others are doing the same, is it not advisable, or even necessary, that some opportunity should be afforded for us to meet together occasionally to tell each other what we know, what are our difficulties, what our desires, and also to take counsel together? By such mutual help as may thus be rendered we shall obtain a wider knowledge, we shall act with greater confidence, and the results should be more beneficial to ourselves, our profession and our patients. On talking the matter over with our Secretary, Mr. Fisk, he was good enough to put himself into communication with a few dental surgeons who were known to be doing School work, and we felt that in adopting the Rules of "The Medical Officers of Schools Association," an analogous body, we should probably be reaping some of the good of their past experience. Our field is necessarily much more restricted, but there cannot be a doubt but that from the papers and discussions which I trust may appear in our Transactions, there will be a good result to our fellows and to ourselves, and we may also reasonably expect that before long we may be credited with having fulfilled one of our stated objects—the mutual assistance in promoting School Dentistry. Still later, will it be too much to hope that on certain matters connected with such work, enquirers and interested persons may find reason to respect the authority of the School Dentists' Society?

## AFTER-DINNER SPEECH.*

By Professor Francis Gotch, M.A., F.R.S.

Gentlemen,—I now approach the serious part of my business to-night, (having got over which I shall no doubt enjoy my evening), that is, the toast of the National Dental Hospital and College.

It will be perfectly useless for me to indulge in any considerable flights of eloquence in order to recommend this toast. You understand that it is the purpose of the dinner to come and drink this toast, it being the dinner of the National Dental Hospital and College. It is therefore easy in one way to recommend my toast to you—it is recommended of itself. It is difficult in another way because this is the first time I have ever taken the Chair of such an Institution as the National Dental Hospital, and I may say that I should not have taken it to-night had I not been thrust into this position by a very old friend of mine, the Dean. (Cheers.) All my shortcomings therefore you must visit upon your Dean, he being responsible.

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* Delivered at the Annual Dinner of Past and Present Students of The National Dental Hospital.

I have been over the Hospital, and was struck, as I believe other speakers have been, with the room at the top—I need not allude to it—the room with the chairs all round it. I do not, however, wish to enlarge upon the arrangements, but I was struck with the extraordinary detail of the Hospital. Previously I was not convinced as to this, but now I do feel quite convinced that the teaching is admirably organised. I do not however propose to enlarge upon these subjects, partly because you are already aware and are consciously proud of the excellence of your Hospital as being probably the best fitted in the United Kingdom: I propose to enlarge, if I may, upon the second part of my toast. It is not merely for the prosperity of the National Dental Hospital that you are asked to drink a toast, but for the prosperity of the College, and it is upon that, if you will allow me, that I should like to say a little.

In the first place a College, whether a Dental or other College, is perhaps in the eyes of the more or less ignorant public absolutely associated with the high standing of its teachers, but there is one thing which is more essential to a College,—the thing for which it exists. The *raison d'etre* of every college is the students (hear, hear), and a reference to a student's life is that which I should like to proceed with.

You may wonder what I, a Professor of Physiology, in Oxford University, can have to say about a student who does not exist there, and I may point out that I have had the privilege of residing at Oxford for a good many years. Before I was presented to the position which I now hold, it was my great privilege to be the Dean of a Medical School in a very flourishing University in Liverpool, where I was for about five years. Well, there I came across my friends the Dental Students. (Cheers.) When I went there there were not very many students. It was not because they were not encouraged; they were encouraged, and there is a reason why they should be. There is an obvious reason why a medical school should encourage Dental Students if it can. Although this encouragement existed at Liverpool it was, perhaps, if I may allude to it, on financial grounds. However, the change soon came, and I will give you some idea of the character of this change. I think when I went there, as far as I remember now, there might have been 10 to 12 students.

The other day I went back to Liverpool, and my successor, Professor Peterson, the Dean, told me how the Dental Students had been increasing. They have now got about 70 (cheers). This number, of course, is distributed over two years, nearly 40 entering last year. Now this alteration seems to me to have brought about two or three different things. It has brought about the increased distinction in which the real branch of Dental Surgery is held in the Medical profession. In the second place the change that has been brought about, and which is of itself the subject to which I have just now referred, is that upon which I wish to dwell, viz., the character of the Dental Student. The Liverpool College is like all the University Colleges, it is a big one, not only in point of numbers, but in the number of its different interests,—its engineering students, medical students, electrical students, students of fine art, technical students, students of hygiene, and lady students, (hear, hear). Now in this Institution, with a new building and with money given by the merchants of Liverpool towards its maintainance, you have a representation of students' life in the North, you have students' comforts, and students' associations.

Amongst the ten students who were first thrust into this College, it so happened that one of the number was one of best violinists I have ever heard, the son of a very well known dental surgeon. There was also a very good athletic man, and a man who was very good at dramatic entertainments. Do you think that there people did not show all the other students what a Dental student was? They made it a good thing for those Councils to have them on their body, and the result was that the Dental student himself at this place instead of being an isolated person, became one in a whole crowd of students, and a very good thing it was. (Cheers). And with the growth of the College, and the gradual increase in the number of students, this thing became general, and I tell you frankly that the Medical School there, and the whole of the Collegiate system showed great ability in that respect. The thing has been a success, but I may say that one element in the growth of Colleges is the demand the public have for real knowledge, this demand being based upon their being now less ignorant. At the same time I think that the growth of that Dental part of the place in question, was only in a small measure due to the circumstance that we put our lecturers upon the Medical Faculty,—it was only in a small measure due to the fact that the Dean happened to be a sympathatic man ; but it was largely due to the fact that the Dental Students themselves were felt to be very desirable acquisitions, and one of the elements of the growth of this University was the increased prosperity of the Medical School, and the great element in that was the Dental Student. (Cheers.) I do not know how many Dental Students there are here, but I wish to represent them for what I imagine them to be, not only Dental Students but a very large mass of the Dental profession.

I do not know whether you realise how I am going to represent you,—I daresay you will not approve of the way. I cannot however help it. What I propose to do is to put myself in the position of a Dental Student. I happen to be a Professor of Physiology at Oxford,—at the same time I think if I were a Dental Student I should have a grievance, perhaps several grievances. However, I am not going to refer to all, but one which I should have is connected with the subject of examinations. Of course examinations are necessary evils; we know they are necessary because of the necessity for you to rely on what you are told to do by those who are stronger than you. They are an evil because they pretend to be a way of ascertaining a certain thing, and only pretend to do that. I am not greatly in favour with the system of examination. I have myself examined about 15 years, and I know other people here who have examined, but if you really ask people they will say the same thing that I am going to say now, that it is very rarely that a man who does not know his work passes one of those examinations. Well, so far good. It is however by no means rare for a man who does know his work not to pass an examination. Of course Professors say how it can be remedied. The subject is one that would command the greatest intellect one has got; (hear, hear), but there is one point I think that those interested in the Dental profession would do well to bear in mind. You should always have your teachers represented on your examination. However, it is not the whole system of examinations that I call a necessary evil, my grievance is the separate examinations themselves. Now you will not approve of my first grievance. However if I were entering the Dental Curriculum I should object to the first examination, which first examination is in general school education, and I maintain that in the rise of education in this country it is asked that every intellectual man should raise his standard of education, (hear, hear). You know what this examination is,—it is for school subjects.

Now for my next grievance. I am not of course going to discuss a subject about which I know nothing, the technique of your Dental examinations. No, I propose to take a subject upon which, with all due deference to those present, I may flatter myself to be an authority. So I will take my own subject, physiology, and we will take as well, human anatomy. As to the final examination, gentlemen, it is difficult for me to get any object with which to compare that final examination. I have thought of a good many things,—I come from the West of England, and I was once invited to a dinner at which a dish was placed before me, much relished by Scotsmen, called "Haggis," and there was another one, (laughter). I did not care very much for either of them on account of the extraordinary jumble of their contents, and I think I can compare this jumble with that on the final examination, as the subjects forced upon me by the curriculum. I have, although I may be only a Dental Surgeon, and not a general surgeon, to dissect just as much as the man who is going to be a general surgeon, (cheers). It is all very well to say that you want a really good system of elementary medical science. You do, but you have got your medical science as you think in this, but not in a system, which is of what I complain. You have got it in a mixture.

The dental student may painfully dissect the ligaments of the foot in order to treat other regions of the body in his subsequent career. Well, what has he got to do if he does not dissect it?

He has plenty to do, but you have not put it on your curriculum. It is amazing to me that on that curriculum, with the jumble of examination subjects, at the end all are examined at the same time, It is amazing to me that you have left out one of the most important subjects in the point of view of medical science,—pathology. Why, you are dealing with an incubator of alkaline fluid, together with all the material necessary for the production of micro-organisms. The whole is more or less bound up with the organisms in the body, but Bacteriology is not included as such.

You are aware that when a student comes, there is a question of composition fee. I do not say the student himself, but his parents or those who are responsible for him, usually say, "I understand there is a composition fee which includes all that is necessary for the dental curriculum." "Yes, it does." "Is pathology included in the composition fee?" "No." You say it is necessary, and I say so; but you see that the Dental Authorities do not think it necessary. In such cases people usually say, "oh, we do not think we will take pathology." At the same time the student does take it, and what I maintain is that you are making too much of one subject, and too little of others. (Cheers.)

I do not now know whether I may venture upon a more delicate grievance, which I should have were I a student.

I should, however, have another grievance, which would be that I should want to have an examination which does not exist. I should want an examination which would enable a student to get a first-class diploma,—I really mean something which may be considered even better than a first-class diploma, I want a university degree. I want a university degree not only for dentistry but for surgery, with a special knowledge of dental surgery, and that I cannot have; and yet dental surgery is as important for national health as almost anything, and it would be a matter of public importance to have such first-class certificates or diplomas, and this I think the public will insist upon as it gets enlightened upon the importance of dental surgery. It will be then that you will get that which does not now exist. I simply lodge my complaint because it appears to me that at this particular moment all those who wish to advance in the dental profession have a chance.

There is a dawn in the new year for London, and you have got not merely a commission but a Statutory Commission, which means a Commission which can make a University, make it by law; and amongst the men to whom that task is entrusted, is one who will not be out of sympathy with you, viz, Professor Michael Foster, of Cambridge. (Cheers.)

All manner of things claim to be represented in this new teaching university; but I gather the School of Dental Medicine or Dental Surgery—whichever you like to call it—has not claimed it; but I think you may make a mistake, and I venture therefore to hope that this National Dental Hospital, so well equipped with its college in such a metropolis as this which ought to lead the van well, will, when I drink the health as I am going to do now, pride itself upon what I consider to be the duty which it owes not merely to its students nor to the metropolis, but to the United Kingdom. (Cheers.) I propose, therefore, gentlemen, the toast of the National Dental Hospital and College, and accompany with the toast that of my old school and college friend, and the man with whom I have travelled years ago in Africa, Mr. Sidney Spokes. (Cheers.)

British Journal of Dental Science.

LONDON, DECEMBER 1, 1898.

# IS A HIGHER DENTAL QUALIFICATION NEEDED?

Professor Gotch, F.R.S., who holds the chair of Physiology at Oxford, has recently as Chairman at the Annual Dinner of the National Dental Hospital and College, been giving utterance to a few remarks which, falling from the lips of a man in his position, thinking for himself as an outsider, and saying what he thinks, are full of interest to the profession. It is usual for the distinguished Chairman at functions of this nature to give vent to a few good-natured and humorous platitudes concerning the utility of dentistry to the public in general, and to himself personally, and to point out the excellent work conducted by the particular institution which has honoured him by asking him to preside at its annual feast. Professor GOTCH on the other hand, although he bore tribute to the useful work of Dental Hospitals and dentists, prefaced his remarks by saying that his utterances might give offence to sundry persons, but that would not hinder him from speaking his mind. After touching on the improvement in the class of young men who are now entering the profession, and remarking, that as late Dean of the Medical School at Liverpool, he had found them a valuable addition to the ranks of University Students there, he went on to put himself in the Dental Student's place, and in that character said he had some grievances. The first grievance he had was in connection with examinations, which after fifteen years' experience he voted a sham, confessing at the same time that he did not quite know what could be substituted for them. He thought, however, they could be improved by having the teachers as examiners and by making every University a teaching University. He objected to the elementary character of the Preliminary Examination, and the miscellaneous nature of the Final Examination. These grievances will shortly be removed, as the former is at present under the consideration of the General Medical Council, and the subjects of the latter will before long be subdivided and taken at different times. He also objected to the student being obliged to attend lectures in subjects in which he was not examined, while subjects like pathology and bacteriology, which were of great importance, were not in the curriculum. But, as Mr. TOMES pointed out, much that Professor Gotch deprecated as useless, was not insisted upon, while many of the things he wanted were being taught. The curriculum and examination might not be perfect, but the results were good, as was proved by the fact that those students who had made their mark at the Hospital and had passed their examinations creditably, usually did well in their future career.

The last grievance Professor GOTCH touched upon was that there does not exist a first-class diploma, such as a University Degree in Dentistry. He thought that Dental Surgery was just as important a subject as many in which degrees were obtainable, such as Public Health, for instance, and he considered the profession should not rest satisfied until a degree was obtainable in dental surgery just like its elder sisters, Medicine and Surgery. He thought a good opportunity presented itself at the present time for making a representation to the Statutory Commission engaged in drawing up the basis of the new Teaching University for London. We are quite in accord with PROFESSOR GOTCH in wishing for a higher degree for those who wish to take it, although we think the L.D.S. is a diploma which answers every purpose in providing the public with efficient dental surgeons. We think that the recognition of our specialty in the scheme of the new University ought to be striven for by the leaders of the profession, in the form of the founda tion of a Chair of Odontology, or in some similar way. We may not get it, but it would be an effort towards the recognition of our profession, and would be the basis of future attempts in the same direction. The idea of course is not a new one; in 1892 Mr. G. G. Campion wrote vigorously in support of such a scheme, and ably defended his standpoint against objectors; "just as a surgeon takes a higher qualification in surgery, and a physician takes a higher qualification in medicine . . so too a dentist, if he wishes further to qualify himself for the practice of his profession should be able to do so by obtaining a higher qualification in dentistry, and not be obliged to look away from his own special work, and aim at placing his name on the Medical Register." Our own opinion is that in the fulness of time we shall see the State grant qualifications in all subjects, and that the standard will be the same whether the qualification be obtained at London, Oxford, Dublin, Edinburgh, or elsewhere. We do not expect our University degree in the near future, though that is no reason why the effort indicated should not be made. There are many other reforms which are far more urgently needed to raise the tone of the profession and to guarantee its protection. At the same time we thank Professor Gotch for his candid criticism, and for holding out a hope which we, for our part, expect to be realized some day, though most of us may not live to see it.

Artificial Teeth for Paupers.—The Visiting Committee of the Board of Guardians of East Grinstead have been considering tenders which were received from dentists for the supply of a set of artificial teeth for one of the inmates under their care. They decided to accept the offer of a firm of dentists in Brighton, who offered to supply them gratuitously and to recommend the Board of Guardians to allow the patient fifteen shillings as travelling expenses to Brighton. No doubt the lowest tender got the job, and we hope the motive was pure kindness. Perhaps the next tender the Guardians receive will offer to pay the railway fare in addition.

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FALSE TEETH USED BY THE ROMANS.—The fact that false teeth, set in gold, were in use among the Romans at an early period is established by the Eleventh of the Laws of the Twelve Tables. The Tenth Law restrains useless expenses at funerals in general, but the Eleventh, as an exception, allows that the "gold settings of false teeth, or the gold with which they are bound, should be buried or burnt with the deceased."

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CURE WORSE THAN THE DISEASE.—The *Family Doctor* quotes some wiseacre who has found out a panacea against dental caries. "At night on retiring if a piece of magnesia the size of a filbert be taken into the mouth and chewed so as to bring it in contact with all of the teeth at all points, it will prove of great advantage. The magnesia not only corrects the acidity of the mouth, but forms by some chemical action, not fully understood, a coating over the enamel, which remains over night and protects the teeth from any injury from the stomach acids." Magnesia is a fine white powder, so how a "piece" is taken is not quite clear. Moreover, filling the mouth with a mawkish tasting powder would not be conducive to rest or peaceful slumbers. We are reminded of the tale of the gouty Earl Derby who returned some anti-gouty wine with the laconic remark, "I prefer the gout."

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DEATH FROM CHLOROFORM.—The following particulars of a death under chloroform have reached us. The patient, a child, aged six years, suffered from malignant disease of the jaw. She had three teeth removed at the Birmingham Dental Hospital and was there advised to go to the General Hospital for removal of a portion of the jaw. It was, however, eventually undertaken in a private house and chloroform was administered by a medical man, the "open" method bei employed. Mr. Newton, the surgeon in charge of the case, proceeded to remove three teeth and was about to resect a portion of the jaw, when the child stopped breathing and eventually died from asphyxia due to the anæsthetic. The death appears to follow an overdose, the method being one which only too easily leads to such an occurrence.

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AN AUCTION SURPRISE.—Recently, at the sale of the effects at the residence of the late Sir Richard Quain, M.D., F.R.S., at Harley Street, W., quite a sensation was caused when the auctioneer submitted a square of tapestry from the servants' hall in the basement of the building, which apparently had been thought to be of comparatively little value, but which, after a spirited bidding, realised no less than 250 guineas.

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LADIES' MEDICAL AND PHARMACEUTICAL ASSOCIATION, LIMITED.—This company was registered on November 7th, with a capital of £3,500 in £1 shares, to advance the interests of gentlewomen who are qualified to act as doctors, dentists, and chemists (by examination), or who are desirous of acting in one of those capacities, to form a preliminary school of pharmacy, to establish a registry or agency of and for gentlewomen seeking engagements as general, midwifery, and surgical nurses, to open consulting rooms where women may receive the advice and attention of gentlewomen duly qualified in medicine and dentistry, and to establish and carry on the business of pharmaceutical chemist or chemist and druggist in London. The first subscribers are:—Mrs. Emma Blunn, 30, Tivoli Road, Crouch End, N.; Mrs. Amelia M. Bryant, 153, Stapleton Hall Road, N.; Mrs. Charlotte Burnet, 48, Upper Gloucester Place, W.; Miss Laura L. de Lassasie, 33, Store Street, Bedford Square, W.C.; Miss Mary Hoc, 75, Hereford Road, Bayswater, W.; Mrs. Adela B. Hordern, 139, Inverness Terrace, W.; Miss Emily L. C. Kingsford, 56, Hewitt Road, Harringay, N. The number of the directors is not to be less than three nor more than seven. The subscribers are to nominate the first. Qualification, 10 shares. Remuneration, £100 per annum divided between them.

Cancer Mortality.—The tendency to cancer increases rapidly with advancing years. At least one out of 21 men, and 1 out of 12 women who reach the age of 35 years eventually die from cancer.

Adenoids.—Dr. Goodhart thinks that this fashionable complaint is due rather to hypertrophy of the mucous membrane than to the presence of definite polypoid growths. He emphasizes the necessity of definite symptoms being present before operation is undertaken, and he enumerates five conditions as necessitating the procedure. These five symptoms are: earache, deafness, enlargement of the glands, pigeon-chest, and asthma; in the latter complaint adenoids should be looked for, and, if found, removed. Some definite guidance of this kind is very necessary at this time, when there is a tendency to ascribe any and every deviation from the normal child as due to adenoids.

Dentifrice Water:

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|---|---|
| Quillaia in coarse powder . | ℥iv. |
| Cochineal (bruised) . . | ʒj. |
| Glycerine . . . | ℥iij. |
| Rectified spirit . . . | ℥v. |

Macerate four days and add—

| | |
|---|---|
| Carbolic acid (crystals) . . | ʒj. |
| Oil of rose-geranium . . | ♏x. |
| Oil of wintergreen . . | ♏xx. |
| Oil of cloves . . . | ♏x. |
| Tincture of pellitory . . | ℥iss. |
| Rose-water . . . | ℥xxx. |

Macerate another four days and filter.

# Abstracts of British & Foreign Journals.

## REMOVAL OF THE DENTAL PULP.

By B. Holly Smith, D.D.S., Baltimore, Md.

Those familiar with the history of the healing art will consent to the proposition that in the proportion that medicine has grown scientific and skilful has less dependence been placed in the therapeutic effects of drugs for the alleviation of human ills. Thirty years ago it was no uncommon thing for a patient to be salivated with mercury and deafened by quinine administered for the relief of a slight attack of malarial fever.

That these exhibitions are less frequent to-day is due not to the fact that these drugs have lost their anti-malarial efficacy, but to the data furnished by the scientific investigators of the pathological action of drugs. Secondary effect has assumed greater importance and possible evils attending administration have outweighed the advantage of immediate relief.

The practitioners of the specialty of dentistry for more than half a century (since the introduction of arsenic into the profession by Spooner in 1836) have resorted to the application of arsenious acid to the dental pulp with a view to its destruction. For years the teaching was that the arsenic should not remain in the tooth cavity longer than twenty-four hours ; but of late it is not uncommon to leave it sealed in for two weeks, and many do not disturb it until disintegration of the pulp has taken place. We are told that it is not necessary to expose the pulp to make the application effective ; that the arsenic will penetrate the dentinal tubuli and the pulp destruction will be aocomplished painlessly. Indeed so penetrating are we led to believe this agent to be, that a recent writer has claimed that teeth to be crowned should have their pulps destroyed and removed, as the slight amount of arsenic contained in the cements with which the crown is set probably will cause pulp destruction.

Has anyone found the exact limits of the destructive power of this agent? Is it a fact that this treatment, which has persisted so many years with little modification, has been attended with no secondary evils? It becomes a very difficult matter, from a clinical standpoint, to answer these questions without fear of contradiction. That pericemental disturbances do frequently occur can be stated without dispute. That arsenic may be the cause of it has long been the thought of the writer. This opinion has been formed through observation of the contrast between pulpless teeth made so by surgical procedure pure and simple and those from which the pulps have been removed after the application of arsenical preparations; this observation covering a period of sixteen years. During this period I have yet to see a case of pericemental inflammation or abscess where the pulp has been removed without resort to the use of arsenic. The contention has been that where pericemental disturbances occur in teeth in which the pulps have been destroyed by arsenic, it is the result of faulty technique or failure to operate under proper aseptic conditions. We think this assumption untenable, in view of the fact that skilled, clean and careful operators have not been able to establish any record not indicating cases of apical or pericemental trouble, in spite of reasonable precautions.

If, as has been stated, arsenic will destroy the dental pulp by an extension of its action through the dentinal tubuli, it cannot be disputed that its fatal effects upon that organ must also embrace the contents of the dentinal tubuli throughout the tooth. The well-known germicidal qualities of arsenic, together with the fact that it has been used successfully as the chief ingredient of embalming fluids, would indicate that no trouble should be expected from the contents of these tubuli when they have been subjected to the arsenical application and securely sealed from the chance of subsequent infection. Indeed, it would seem that the contents of the pulp-canal and tubuli while directly under the influence of the arsenic would offer a very poor field for infection, and it seldom happens, even in careless hands, that immediate unfavourable results follow. The contents of these tubuli, shut off from outward infection, separated from the circulation and under the embalming influence of the arsenic, would seem to offer no menace to the health of the tooth, even though the apex were imperfectly sealed; yet trouble not infrequently arises in after years, even when the operator has been reasonably certain that the apex was entirely closed.

Why? Is it possible that a sleeping volcano has been located in the apical space by the application of arsenic, that the effect of the agent has not been limited to the confines of the pulp-canal and dentinal tubuli, that the area of the tissue affected breaks down in seasons of depressed vitality, or becomes infected through the medium of the circulation? Why should the arsenic affect only the contents of the pulp-canal and dentinal tubuli? The apical opening may be infinitesmal, but it must of necessity be large in comparison with the tubuli in the dentine. Why may not the nerves and vessels in the apical space and a considerable area of the pericemental membrane have a share in the action of the arsenic? There is no positive evidence of a well-defined line of demarkation in the effect, even after the agent passes the point where it has power to destroy; may it not deplete and incapacitate the tissues until disaster is invited, and may subsequently occur?

The most doughty and enthusiastic advocate of arsenious acid, Dr. J. Foster Flagg (in the *Cosmos* for July, 1877), says: "It is the almost universal experience that after an arsenical application has remained in the tooth for several days, soreness of the organ supervenes, a tenderness upon occlusion, slight pain from striking, etc.—all indications, apparently, of peridental difficulty; but these same symptoms are concomitant with the dying of the last portion of pulp, no matter from what cause, and if a pulp be extirpated during the existence of this condition, it will, under the microscope, present an appearance which will clearly indicate the reason for such tenderness in the evident absence of vitality in the greater portion of the tissue, and the equally evident presence of high inflammation in that portion immediately contiguous to the apical foramen." If this state of inflammation occurs in every case with the dying of the pulp, why is it not better that it be extirpated under the influence of an anæsthetic?

Arkovy indicates that the agent is quickly taken up into the blood-vessels, no coagulation of tissues whatever occurring. He says: "It has a specific influence upon the blood corpuscles, combining with the hæmoglobin to form a compound of arsen-hæmoglobin. In nearly every case it is taken up in substantia (in the form of molecules) into the blood ways; when there it produces, besides the above-mentioned changes, granular detritus of the contents. The nuclei in the neurilemma are somewhat increased, granular destruction of the myelin, and here and there disappearance of the axis-cylinder occur."

Dr. Kirk in a recently published paper (*Cosmos*, August, 1898) says, " Broadly considered, any inflammatory action is a disturbance of the normal processes of nutrition: this is true of both general and local inflammations, the disturbance being proportioned to the intensity of the irritative action. Where bacteria and their products are the excitants of the inflammation their effective invasion is conditional upon the vital status of the tissue concerned. If the vital resistance of the tissue is sufficiently high it becomes immune and bacterial invasion is impossible. The vital potential of a tissue is the result of the sum total of its nutritive processes normally performed. Any interference with the normal nutritive process therefore results in a diminution of the vital potential of a tissue and renders it liable to invasion by bacteria with consequently inflammatory reaction. A disturbance of normal nutrition resulting in lowered vital resistance is therefore a precedent condition to effective bacterial invasion."

This is exactly what we may expect of the remote effects of arsenic, to lower vital tone, disturb nutrition, and by so doing invite infection. It is not claimed that any extended amount of tissue beyond the apex is as profoundly impressed as the pulp structure, for if such were the case immediate expression of this pathological condition would ensue. The records of surgery furnish abundant evidence of encysted areas which subsequently break down and become infected through the circulation. This, we believe, is the rational explanation of pathological expressions occurring in the apical space of teeth which have been treated with arsenic.

If the suspicions which have been aroused in the mind of the writer have any foundation in fact, and if he has correctly interpreted his clinical experience, arsenic should no longer enjoy its universal popularity but should give place to surgical procedure. Ten years ago this would have been more difficult than it is to-day, and the difficulty of to-day involves not so much the absence of other means, but aversion to a change of practice and the well-fixed habit which has fastened itself upon the profession of treating teeth for which no charge is made. Some of our best operators will assign two hours to a patient to fill a tooth with gold, and five minutes in which to destroy a pulp. If we can justly claim to be dental surgeons and not mere cavity-stoppers, this is not right and must be changed. One or two hours is not too long for the removal of a dental pulp, and a fee of 10 to 25 dols. is not too much to charge for its accomplishment.

The first consideration of the surgeon is the necessity of operative procedure ; second, that the patient and field of operation are in as favourable condition as can be obtained. These general considerations are not to be overlooked by the dental surgeon. No effort should be made to remove a dental pulp in a high state of inflammation. Antiphlogistic agents must be used until the irritation, with its consequent dilatation of vessels has subsided.

My custom has been to flood the cavity with tepid solution of bicarbonate of soda, the cavity is then closed with a pledget of cotton saturated in cocaine hydrochlorat for a few moments, care being taken not to allow any pressure to defeat the object of the application. If any excess of debris or accumulation of leathery decay is found in the cavity an effort is made to remove enough of it to gain access for subsequent applications to the pulp, not entirely uncovering that organ, however. Great care is taken not to cause any pain, for the patient has been assured that the treatment may take time and patience, but is to cause no pain. To break this promise at any time would be unfortunate, but to do so in the initial treatment would be suicidal to the confidence so essential to success.

A concave disk of vacuum cavity material, made by driving the reverse or butt end of an excavator into a sheet of the metal held on a lead or wooden block, is now adjusted to the cavity so that its edges will impinge upon the walls and prevent pressure. Under this disk a pledget of cotton, saturated with oil of cloves, is placed, the whole then being covered with temporary stopping. The gum over the affected tooth is painted with aconite and iodine in equal parts, and the patient dismissed until one or, preferably, two hours can be reserved for the operation. If pain has ceased and the excessive irritability subsided when the patient reappears, the pulp is cocainized with the electric current and removed. Here we shall have to proceed cautiously, but the reward is in sight. Why should we not have patience ? My practice is to use a minimum amount of current and a saturated solution of cocaine. I have heard complaints of occasional failure of cataphoresis. A surgeon is full of resources ; if cataphoresis is not successful in the fullest sense, it may be supplemented by injection or by the administration of a general anæsthetic, preferably nitrous oxide gas. In all cases teeth containing living pulps are to be excised or ground down, advantage is taken of the opportunity to remove the pulp under the influence of the shock of the excision. This can be done with no pain whatever; the apprehension of the patient being lessened by cutting the enamel with disks or burs, leaving only so much to be excised with the forceps as will not require any great stress or violence. A cone-shaped bur of suitable size is ready in the engine, clean and sharp; broach, etc. are to be ready, for the entire pulp must be removed instantly. The bur may not be necessary, but if the pulp is not freely exposed it should be plunged into the canal, the ragged orifice enlarged and the pulp broken up. The broach is now passed quickly to the apex and the pulp twisted out in toto. It is needless to say that surgery finds its most inviting field in the single-rooted teeth, but success can be attained also with the molars, if the effort is painstaking. Surgery is not only more scientific, but when it is proved to be more successful a plea for this alteration of our methods of practice should not be unheeded.—*The Dental Digest.*

## APHTHOUS STOMATITIS.

By Dr. A. Levi.

Stomatitis aphthous, according to most authors, is an acute inflammation of the mucous membrane of the mouth characterised by a fibrinous deposit in the form or white or yellow spots of the size of a hempseed to that of a lentil. Billard and others consider this disease an inflammation of the mucoid follicles of the mouth. Vogel and Biedert look upon aphthæ as ulcerations, and divide them into aphthous and ulcerative stomatitis. Rilliet and Barthez consider them to be vesicles, which later on become ulcers (Stomatite vésicoulcéreuse of Rilliet and Barthez). Monti describes aphthous stomatitis as an inflammation of the mucous membrane of the mouth, which causes fibrinous deposits on and under the epithelium. In the author's opinion this explanation, as we shall learn from pathologico-anatomical investigations, is the only correct one.

*Etiology and Pathogenesis.*—Aphthous stomatitis is a disease of childhood. In the adult it is rarely met with, and then usually in women during the menstrual period, in childbed and during lactation. From the statistics of 111,143 cases we may form the following conclusions:

1. That aphthous stomatitis is present in children in 0,972 per cent., i.e., about 1 per cent.

2. That the disease more frequently attacks females than males. Levi does not believe that this circumstance, which has already been remarked by Monti and others, should be given any particular importance.

The disease is found in children of every constitution. He is not able to agree from his experience of ninety cases with Billard, Rilliet and Barthez, in their opinion that weakly and lymphatic children are peculiarly predisposed. Monti indeed has observed, and Levi confirmed it, that this disease is frequently met with in rachitic children. He does not believe, however, that this is due to a weak constitution, but is due to disorders of digestion to which these children are subject, and, as Monti suggests, to the great frequency of carious teeth. As regards the age, aphthous stomatitis is found even in infants at the breast, nevertheless it is very rarely met with before the period of dentition. Monti has never met with it in the new-born. In 496 cases which Levi has gathered he found the disease once in a child fourteen days old, and once in a child twenty-eight days old. Bednar found one case in 100 new-born infants; Bohn, three in 169 during the first month after birth ; other cases are mentioned by Denis and Billard. Levi agrees with Monti that these cases were probably not true aphthous stomatitis, but cases of simple isolated aphthæ. Its rare occurrence before the period of dentition is probably due to the uniform nutrition during this period of infantile life and to the greater care observed by the mothers in regard to the cleanliness of the infant's mouth.

The inflammation of the mucous membrane, the increase in the secretion of saliva, the raised temperature of the mouth—which frequently accompany dentition—are conditions favourable to the development of micro-organisms and to the decomposition of food.

The season of the year also seems to play an important role in the etiology of aphthous stomatitis, for in the warmer months this disease is met with most frequently. Another important factor is the relation of this disease with epizootic aphthæ. Some authors identify both diseases and assign infection through the milk of animals suffering from aphtha epizootica as the only cause of the disease.

Levi was fortunate enough to be able to demonstrate that this stomatitis occurred in children in whom an infection through milk could be positively excluded, as the latter was alwayo carefully sterilized before use.

Aphthous stomatitis is a contagious affection; drinking glasses, utensils, soiled clothing, etc., may become carriers of infection.

*Diagnosis.*—Bearing in mind that vesicles only are found and that the process of disease consists in depositing a fibrinous exudate in the shape of macules on different parts of the mucous membrane, it will be easy to make a diagnosis. Mistaking it for ulcerative stomatitis may, however, occasionally occur, as these two processes frequently exist together. The aphthæ, however, consist of an inflammation which remains localized on the superficial portion of the mucous membrane of the mouth with the deposition of a fibrinous exudate, while in ulcerative stomatitis, necrosis and loss of substance is characteristic of the disease, because we hsve to deal in the latter with a diffuse parenchymatous inflammation followed by an ulcerative necrosis. Aphthous stomatitis is exceedingly painful, ulcerating stomatitis gives the patient only a sensation of swelling and pulsation. From sprue, it may be distinguished by the course of the disease and by a microscopical examination. In Bechar's aphthæ, the seat of the apthtæ and the age of the patient will lead us to avoid mistakes.

*Prognosis* is favourable in the greater number of cases. It may, however, become very very grave when an edema of the glottis is occasioned by the formation of an excessive number of aphthæ in the posterior portion of the throat and in the confluent epidemic form.

*Treatment.*—Aphthous stomatis being an infectious disease, isolation of the patient is of the greatest importance in its prophylactic treatment. The milk should always be boiled or sterilized. The general condition of the child should be carefully looked after. Local or general disease (for example bronchitis, gastroenteritis, eczema, etc.) should at once be combated, for the greater number of cases of stomatitis is observed in these cases. The hygiene of the mouth is of the highest importance, as without doubt various micro-organisms will be formed here from the decomposition of food particles, etc. In the second year of life, and during the period of dentition particularly, the hygiene of the mouth should be observed with the greatest care, as the children at this time are not yet able to masticate thoroughly, and swallowing of all food particles is not perfectly accomplished, so that remnants of food frequently remain in the mouth. In fever patients also disintegration of the food occurs more rapidly. In these cases Vichy water or the following has a very good effect:

| | | |
|---|---|---|
| R | Sodii bicarbon | 3.0 |
| | Sodii borac | 2.0 |
| | Aquæ destill | 100.0 |

Mix.

Antimycotic remedies, as salicylic acid, benzoic acid, boric acid, etc., are also to be recommended. Treatment should be both local and general. Locally the following solutions are recommended, with which the diseased portion may be painted four or five times a day:

| | | |
|---|---|---|
| R | Sodii borac | 4.0 |
| | Tinct. myrrhæ | 8.0 |
| | Syr. morerum | 60.0 |

or,

| | | |
|---|---|---|
| R | Borac | 4.0 |
| | Tinct. benzoe | 2.0 |
| | Aq. destill. | 10.0 |
| | Syr. simpl. | 20.0 |

or,

| | | |
|---|---|---|
| R | Sodii phosph. | 10.0 |
| | Aq. naphæ | 25.0 |
| | Mellis rosati | 50.0 |

or,

| | | |
|---|---|---|
| R | Calc. chlor. | 2.0 |
| | Mellis | 20.0 |

or,

| | | |
|---|---|---|
| R | Potas. chlor. | 3.0 |
| | Aq. destill | 60.0 |

Baginsky recommends potassium permanganate (0.1 to 15.0), and claims a specific action for it. Hirtz recommends

| | | |
|---|---|---|
| R | Acid. salicyl | 2.0 |
| | Alcohol | 10.0 |
| | Glycerin | 20.0 |

or,

| | | |
|---|---|---|
| R | Sodii salicyl | 20.0 |
| | Aq. destill | 100.0 |

Most cases will yield to any of these formulæ or heal even without treatment. Again, we meet with those which, in spite of early treatment, present a grave form of the disease as early as the second day.

Levi, from the observation of a great number of cases of stomatitis, maintains that no other remedy will give the same favourable results that chloric potash attains. It may be looked upon merely as a specific. Its external use should be combined with its internal administration to obtain the very best results.

Monti's prescription is:

| | | |
|---|---|---|
| R | Potas. chlor | 4.0 |
| | Aq. destill | 200.0 |
| | Tinct. myrrhæ | 3.0 |

M. Sig.—For washing out the mouth.

and

| | | |
|---|---|---|
| R | Potas. chlor | 1.0 |
| | Aq. destill | 90.0 |
| | Syr. rubi idæi | 10.0 |

M. Sig.—Keep on ice. A teaspoonful every two hours.

In stubborn and severely painful cases it will be necessary to use a solution of salicylic acid, according to Hirtz, or of corrosive sublimate.

| | | |
|---|---|---|
| R | Hydrarg. biclor. corr. | 0.1 |
| | Aq. destill | 50.0 |

M. Sig.—For pencilling the mouth.

Should this, however, fail, or should the aphthæ pass into an ulcerative form, a superficial cauterization with lapis mitigatus or sulphate of copper must be resorted to. Where pain is exceedingly great, solutions of the tincture of opium, of extract of opium or of cocaine may be applied. Only cold liquid nourishment should be given, and this, especially in cases of recurrent aphthæ, which are nearly always accompanied by a state of irritation of the gastro-intestinal mucous membrane, should be as nutritious as possible.—*Wiener Medical Blatter.*

## A CURIOUS CASE OF PHOSPHORUS NECROSIS.

A case of phosphorus necrosis due apparently to the inhalation of phosphorus fumes is recorded in a recent issue of *L'Odontologie.* The patient was a man, of good health, but addicted to the habit of excessive cigar-smoking, consuming about 20 cigars a day and using many matches to each one, as he frequently interrupted the smoking during his work. It was computed that for the last 20 years he had daily inhaled the vapour of phosphorus given off by over 100 matches. The early symptoms were pain in the right eye, with swelling involving the whole side of the face. Suppuration supervened and the pus obtained a free flow into the oral cavity. The patient's condition grew worse and the maxilla was eventually removed. A few months later a fresh operation was necessary; but the patient collapsed dying from meningitis. The patient's teeth were in a deplorable condition, so that it is possible the phosphorus acted through the medium of the teeth as the cause of the necrosis.—*Lancet.*

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## FAILURES IN OPERATIVE DENTISTRY.

By Dr. L. F. Frink, of Lake City, Fla.

Who is there among us who does not have failures, and why? I shall attempt to mention briefly a few of the most important causes.

Chief among these is dull instruments; especially is this the case with burs. We defer ordering new ones to a future day and toil on with the same old burs, causing greater friction, more pain, even endangering the life of the pulp and at last an improperly prepared cavity.

The use of sharp excavators or chisels to pare away the thin marginal walls is necessary, especially at the cervical wall. No first-class mechanic will attempt to finish up a nice piece of work with dull tools, then how much more important is it in this high calling of ours.

We should use the best instruments and replenish our supply of burs often, remembering that however good an instrument may be, it cannot last always.

Again, we have failures from filling in too close proximity to the pulp. I deem it best to leave some discoloured dentine immediately over the pulp rather than excavate too near.

In our eagerness to complete a piece of work and thus obtain the fee, a wrong selection of material is made. A gold filling is used when cement or amalgam is indicated.

This is often done to please the patient. While I shall always advocate the use of gold, yet there are cases where cement fillings preserve the tooth much better than the metallic fillings.

No gold fillings will stand unless thoroughly condensed.

Too often we see the mistake of failure to remove salivary calculus. This brings to mind the oft-repeated injunction of our honoured professor, Dr. James Truman: first examine the mouth, second clean the teeth, then you can see more clearly what should be the treatment. I am truly sorry that in this enlightened age there should be found those having mouths in which, did we not use the scaler freely, we would never find the cavities to be filled. In such mouths the best fillings by the most skilful operators are failures.

Let us impress upon the minds of our patients the grand lesson of cleanliness in the mouth as well as of the body. When thus educated we will soon find that we have fewer failures in operative dentistry.—*Cosmos.*

## THE RUBBER DAM.

By Dr. Stellwagen.

It is a little strange to come from Philadelphia to New York, where Barnum first introduced the rubber-dam, and take exception to the indiscriminate manner in which the rubber-dam is being used to-day. Often a tooth can be properly filled in half the time taken to adjust that contrivance, and there are patients who will not and cannot permit its use in their mouths. In very nearly ninety per cent. of our operations a few pieces of ordinary unsized muslin, torn or cut into squares of about three inches, are vastly more useful. Properly managed in the mouth, these little absorbers will keep most of the cavities in the teeth perfectly dry. A number should be prepared and laid flat in a small drawer ready for use. They are useful for a thousand-and-one things. Sometimes they are torn into narrow strips for polishing; sometimes cut into smaller sections for drying out cavities. If desirable, two or more can be folded together. Use a single one, placed between the cheek and the tooth, and between the tongue and the tooth two or three may be needed to keep a cavity dry. Bleached muslin is preferable, for the reason that it does not take up the moisture quite as rapidly as linen. It is easy to slip a dry one in next to the tooth, and pull the moist one out with a pair of pliers. If it is necessary to leave the patient for any particular reason, get him to take hold of the tooth with a forefinger and thumb, and often he can hold it dry for five or ten minutes. In cases where the saliva runs very freely you will find the saliva ejector useful, and you may have to use the rubber-dam. Armed with the squares, one need not apply the rubber-dam as often now in a month as formerly in a week, for this method answers nearly all purposes.—*Cosmos.*

## TUBERCULOUS PERFORATION OF THE SOFT PALATE.

At the meeting of the Société Médicale des Hôpitaux on Oct. 21st., 1898, Dr. Du Castel read the following case: A man, aged forty-two years, who had been very vigorous, lost flesh considerably. He entered the hospital for a painful condition of the throat, which almost completely prevented him from taking food. There was an oval perforation of the soft palate, in the middle line, measuring 6 mm. by 4 mm. At first sight it appeared to be syphilitic, but neither history nor examination of the patient revealed anything to support this view. Near the last right upper molar tooth and extending some distance on the palate was an irregular ulcer, with granular surface and a yellowish-grey and sanious coating. At its circumference were numerous little yellow granulations presenting all the appearances of miliary tuberculosis of the mouth. At the left border of the perforation was a small granular ulcer with a pultaceous coating exactly resembling that on the former ulcer. Near the latter were three miliary granulations with tuberculous characteristics. The patient was manifestly tuberculous; he had pulmonary cavities, profuse expectoration, night sweats, and diarrhœa. He died some days after admission. The necropsy showed diffuse tuberculosis of both lungs. The nasal mucous membrane near the perforation was ulcerated and papillomatous. Numerous tubercle bacilli were found at the margins of the ulcer. Tuberculous perforation of the soft palate is very rare. M. Talamon published a case in the *Journal de Medecine Moderne* of Sept. 2nd., 1893, and declared that he could not find another in medical literature. M. Talamon's patient, unlike Dr. Du Castel's and the majority of patients with tuberculosis of the mouth, showed no sign of pulmonary tuberculosis, and had a cough only a short time. When first seen he had had for several days sharp pains in the throat. There were dusky redness of the posterior part of the soft palate, uvula, pharynx and tonsils, and irregular ulceration of the left tonsil. Near the latter on the soft palate were three yellow points, presenting all the appearances of tuberculous granulations. They enlarged, coalesced, and ulcerated. On the eighth day the soft palate was perforated. The bacillus tuberculosis could not be found. The patient was treated with cantharidate injections and applications of lactic acid, under which the ulcers almost healed and the perforation became almost obliterated. He then left the hospital.—*Lancet.*

## ON COCAINE POISONING.

By G. Lenox Curtis, M.D., New York.

Dr. M. W. Foster, of Baltimore, in writing on the "Toxic Effect of Cocaine induced through Cataphoresis, applied to a Pulp preparatory to its Removal," describes a very interesting case, which should lead to an extensive discussion on the use of cocaine, in order that men throughout the world may give their personal experience in both its local and general effects. There are so many phases of its toxic effect that no one writer would be likely to include them all. My experience in the use of cocaine during the past fourteen years has been varied. I cannot agree with Paul Bert, who says, "the action of cocaine is purely local," for I have had many a narrow escape from losing my patient through its extreme general effect. I have also had many cases where its local effect was absolutely wanting, and I have had at least one-half dozen cases similar to the one in question described by Dr. Foster, where the body became numb even to the tips of the fingers. In two of these cases the symptoms were pronounced within two minutes after the injection of cocaine. In these latter cases it is but fair to state I employed a saturated solution, which is my present custom, as now, with its antidote, volasem, I do not feel any hesitancy in using cocaine as freely as I would water. My work in oral surgery is simplified by the use of a local anæsthetic, and cocaine is the most satisfactory one I have employed. Where I once used general anæsthetics in a large percentage of my cases, I now rarely find them necessary, but this has been entirely brought about by the use of volasem. In a recent case, where I had forgotten to give the volasem prior to the injection of one-half drachm of a saturated solution, complete unconsciousness of the patient and rigidity of the muscles, followed by delirium and effort to fight (the patient having several times violently struck my assistant) was the result. I could not understand this condition until I saw that the volasem I had prepared had not been administered. I immediately forced the patient to swallow it, and within two minutes he was entirely conscious and in a normal condition. He stated he had no knowledge whatsoever of the operation or of any acts committed by him, but he did remember he imagined himself Fitzsimmons, the prize-fighter. Except for his dentist (who was present) assuring him of his condition, he said he could not have believed it. For the purpose of obtunding sensitive dentine or pulp preparatory to removing it, as in the case of pulp-stones, it is my custom, after drying the cavity with a hot blast, to pack it with cocaine crystals, sealing it and allowing the drug to remain from thirty to sixty minutes. By this means I have been able to complete the work perfectly without pain.—*Cosmos.*

## FATALITIES FROM ANÆSTHETICS.

It is with great difficulty that figures relative to mortalities from anæsthetics are obtained, because neither the local nor general government makes any effort to especially chronicle the deaths from anæsthetics, and in many instances the death is attributed to some other cause. Dr. Ernest Hankel, in his recent book, " Handbuch Der Inhalation Anæsthetics," states that he has made a very careful investigation into the merits of the several sleep-producing agents, and his research yields the following statistics:

Pental in 213 cases, one death.
Chloroform in 2,039 cases, one death.
Ether in 5,090 cases, one death.
Ethyl Bromide in 5.228 cases, one death.
Nitrous oxide in 500,000 cases, one death.

## CYST OF THE MAXILLARY ANTRUM.

By Wm. R. H. Stewart,
Surgeon to the Ear, Throat, and Nose Department, Great Northern Central Hospital; Consulting Surgeon to the London Throat Hospital.

C. J., aged 32, came under my care in July, 1898, with a history of a swelling which had appeared four years before below the left eye, with frequent pain. It had remained in this condition until twelve months ago, when a fulness was felt in the mouth; latterly this had increased a good deal. Fluctuation was easily felt between the roof of the mouth and the front of the antrum.

Under an anæsthetic the swelling was opened in the canine fossa, and the front of the wall, which was very much thinned, removed. The cyst was found to contain a very large quantity of clear, glairy fluid, like white of egg, in which were white glistening crystals, of cholesterin. The cavity was well washed out with an antiseptic solution, the walls scraped with a sharp spoon, a drainage tube inserted, and daily antiseptic washing employed. I saw the patient at the beginning of November, and he was then quite well.

### REMARKS.

True cysts of the maxillary antrum are very rare, and before operating I concluded that this wss a case of cyst of the upper jaw itself independent of the antrum. I am, however, led to believe that this cyst was in the latter cavity from the following facts:

(1) There was easy communication between the nose and cyst.

(2) The finger passed through the opening could thoroughly explore what seemed to be the cavity of the antrum.

(3) The great extent of the swelling in the mouth.

(4) The quantity of the fluid evacuated.—*British Medical Journal.*

## THE ABUSE OF BRIDGE-WORK.

By Dr. HOFFHEINZ.

It is but a few years ago that the use of vulcanite has been assigned as the cause of much decline in prosthetic dentistry, but the mischief done by the rubber introduction is no comparison, in my mind, to the mischief done by crown and bridge work. I make the bold assertion that the indiscriminate use of crown and bridge work is to blame for a decline in operative skill. The readiness with which dentists condemn teeth nowadays as unfit to fill, but safe for crowns is appalling. Had our predecessors done the same we would have been nearer an edentulous race than we are. The ease with which crown and bridge work can be done, if compared to highly skilful operative dentistry, is undoubtedly the main cause of the wholesale butchery, of the wholesale unæsthetic dentistry that confronts us in the profession to-day. How much easier to cover a first bicuspid with a gold crown than to insert a properly constructed contour filling, well condensed, well knuckled, highly finished. Is it altogether the physical labour that speaks against the laborious task of the tedious filling process, or has the self-advertising gold crown something to do with it? With many it certainly has. Within the last four weeks I have removed two crowns for which there was not the least necessity.

It is not crown and bridge work which has and is proving a curse to the profession, but the abuse of it by charlatanism; it is not the introduction of rubber that relegated prosthetic work to fourth place in dentistry, but the abuse of it by cheap slovenly dentists. Bridge-work used with judgmont and in honest hands is the greatest blessing in the shape of dentistry mankind has known. Rubber plate work has its place, and plastic fillings in honest, careful hands, are a power in saving frail teeth.

But the placing of these blessings in the hands of the unskilful botch is what is ruining the teeth of thousands. Is there no remedy for it? There certainly seems to be none. In all the avenues of trade and in all professional life, there is an element of robbers who manage to subsist by extorting money from the ignorant and thoughtless by the open process of robbery known as "tricks in trade."

The people will gradually become educated to know that skill cannot be obtained without adequate compensation, and there is no help for them until they learn this by experience. There is no need to worry over it. The same paints and brushes in unskilful hands will make but a daub which in the hands of an artist will make a thing of life and beauty. Crown and bridge work will be forced back by the inevitable to its proper place in dentistry, and the painstaking, skilful operator will go on saving teeth and replacing lost ones, using all the methods and materials known to secure the best ends. The man's deeds will surely find him out.—*Indiana Dental Journal.*

## ROYAL COLLEGE OF SURGEONS IN IRELAND.

### Dental Examination.

Mr. R. C. De Lacey, registered Dentist, having passed the necessary examination, has been granted the Licence in Dental Surgery of the College.

# Dental News.

## ANNUAL DINNER OF THE STAFF AND PAST AND PRESENT STUDENTS OF THE NATIONAL DENTAL HOSPITAL.

This Annual Dinner was held at the Holborn Restaurant, on Friday, the 18th ult., Professor Francis Gotch, F.R.S., presiding. Amongst those present were Messrs. C. S. Tomes, F.R.S., J. Smith Turner, W. B. Paterson, W. H. Dolamore, D. Hepburn, A. S. Underwood, Dr. Pasteur, Dr. Dudley Buxton, Professors H. R. Spencer and J. Rose Bradford, F.R.S., and Mr. Raymond Johnson. There was a large attendance. After the Loyal Toast, the Chairman proposed "The National Dental Hospital and College," in a speech which we publish on page 1065.

Mr. SIDNEY SPOKES, in reply to the Toast, said:

Mr. Chairman and Gentlemen, once again it becomes my duty to respond to this toast which is proposed from the Chair, and to speak on behalf of the members of the Staff of the National Dental Hospital and College. Most of you know that no longer am I actually on the Staff of that School and Hospital, but that I am simply a Dean, and nothing more, and as soon as ever my colleagues on that Staff elect another Dean, I have nothing more to say publicly in connection with the Institution and School. But as the humble Dean, it is once again my function to say a few words in response to the Chairman's toast. The School itself, I think, is continuing to be a flourishing one, the Hospital as a charitable Institution is also flourishing. One of the changes that may be alluded to is the opening of the Laboratory for the Dental Appliance Department. That is in consequence of the new alterations of the Curriculum in the College of Surgeons; but altogether I can say, gentlemen, that everything is being done by the Staff of the School to keep up with the times, and to keep up with the Curriculum which our Chairman has alluded to. Another matter which has been considered is the question of taking pupils for training in Mechanics in the Dental Hospitals. Some think that the time must come when all Dental Hospitals will be, as some have already been, provided with the necessaries for giving a pupil the three years' mechanical, followed by the two years' hospital practice, all under the same roof.

I did not quite know the views of our Chairman when he was invited to take the Chair; he gave me to understand that what he was going to say might not find favour. But I told him I did not think that would matter, However strongly one may feel that one has the right end of the stick it is always in my opinion wise to hear what the other man has to say, and I think to-night proves an exception to the rule. We have heard something novel from our Chairman. I pass over of course the splendid advertisement that the Liverpool school has received at his hands this evening (laughter). I do not begrudge that provincial school a well-earned advertisement, but I pass that by, and also the whole question of provincial schools except so far as to say that the London Schools must reckon with these provincial schools in the future. He also spoke of examinations Now this is rather a critical evening for us, gentlemen, because some of our company have been detained at another board, not such a happy one as this, but examinations have always had a certain amount of influence on us, and as the Chairman speaks of our curriculum, I should like to refer to his statements to-night. I cannot help thinking at first sight that there is something in what he said about 12 months' dissection being unnecessary, and that too much physiology is required from the modern dental student. Professor Gotch suggested that Pathology and Bacteriology should be substituted, and I suppose he will readily admit that in order for a student to understand Pathology, a certain preliminary acquaintance with Physiology is necessary, and then the Student can go on to bacteriology and should combine that with surgery.

Regarding the first class diplomas, Professor Gotch does not know possibly, although I must admit he is tolerably well up in Dental matters, that this is an old question amongst us, and there is one very strong upholder in that part of the country from which he came, Mr. Campion, who read a paper upon the question of Higher Dental Qualifications, which was discussed and considered. Some of us have thought that the present qualification as granted by the Royal College of Surgeons is as good as can be got, and that any additional qualification to the L.D.S., for one who has the time, inclination. and money, might well be the conjoint diplomas of the two Royal Colleges. The Chairman has suggested that the new University of London shall make provision for a Degree in Dental Surgery, and perhaps D.D.S., Lond., would sound very well.

Regarding the gentleman who was alluded, Professor Michael Foster, of Cambridge, has presided for us here on a former occasion, and he has expressed himself in sympathy with the Dental profession and with its aspirations, and the fact that Professor Michael Foster is on that Commission, and as our Chairman reminds us is in sympathy with it, should encourage us to hope that this new University for London should make some provision for a University degree. I hope some gentlemen here to-night may go away with the firm determination of seeing that anything that can be done in this direction shall be done.

Now, gentlemen, I do not propose to keep you any longer except to say on behalf of my colleagues that no efforts shall be spared on their part to do in future as in the past, all that is possible to maintain the interests of the National Dental Hospital and School, and that they hope the succeeding generation of students may depart from their school with as lively a satisfaction after two years' hospital training as those who have gone before them. (Loud cheers).

Dr. GADDES, who rose amid cheers, said:

Gentlemen, the toast which has been committed to my charge is one which is usual on gatherings of this kind. It is one that I cannot apologise for as being new to me; it has on former occasions in years gone by been my privilege to propose this toast on two occasions. The last was on a memorable—a very memorable occasion—in this room ten years ago. The toast therefore on this occasion is being proposed not by one of your staff, nor as has occurred on many previous occasions by distinguished gentlemen who have occupied the Chair, and in that respect I must apologise for the toast coming from an outsider—from me. (Cheers and "No.") The toast of "The Past and Present Students of the National Dental Hospital and College" on a gathering of this kind I should rather take from our distinguished Chairman, and claim for it the position of the toast of the evening, for what would the College be without the students, either the students in the past or those of the present day? The students in the past give a status—an *éclat*—to the College of the present day,—the students of the past are now occupying positions of distinction in the profession, and those positions of distinction are of varied kinds, either as Presidents of the different branches of the British Dental Association, or as teachers in connection with many of our provincial schools, indeed in connection with the Liverpool School of which we have heard so much, and of which the National Dental can boast of at least three members of its past students being present teachers in the Dental College of Liverpool. (Cheers.) And amongst other teachers we have teachers on the very staff of the National Dental College itself. Gentlemen, were any of those who have preceded them more worthy, more capable, inasmuch as they have imbibed what has been imparted to them by their predecessors? I need scarcely refer to our amiable and distinguished Dean, Mr. Spokes, who was a student of the National Dental School. The National Dentals I may say as a generality have always been characterised as hard-working fellows (hear, hear), hard-working and industrious, and amongst those who have passed the barriers or portals of the profession, some have distinguished themselves, as I have already mentioned, as teachers, and occupy positions of eminence in the profession, and others will minister, I venture to assert, in the best capacity, to the requirements of the public, and are in the best sense of the term public servants. The National Dental, therefore, has every reason to be proud of her past students. The present students have in their past colleagues and confrères notable examples to follow, and they have something higher, I think, to attain than those who have gone before them. Those who have gone before them took advantage of the opportunities that were afforded them. ho-day, gentlemen, the present students have greater advantages presented to them, and I have no doubt from the work I saw at the Hospital this morning, and from what I have heard of the successes at the various examinations, that the present students will rightly and fully maintain the prestige and honour which has been attained by the past students of the National Dental College.

Our distinguished Chairman referred in his speech, which I was very proud to hear, to a University degree for Dental Students. It is not a new subject, and the formation of a University—a teaching University for London—has been on the carpet for a good many years, and as students can obtain all the University education in various faculties, such as arts, science, literature, medicine, divinity, and so on, why should not one of the most important specialities of medicine not be recognised by this forthcoming University? That, I think, is a desideratum that we should all work for and look to, that the new University should have power to grant degrees in Dental Surgery. It would enhance the status of Dental Surgery in a professional aspect, and it would meet the requirements of advanced education in the estimation of the public of to-day. I had, therefore, very great pleasure in hearing Professor Gotch speak in connection with the anticipated teaching University in London, which will grant degrees in medicine, science and art to the numerous students of London. Gentlemen, it affords me very great pleasure again, ten years after, in this room, to have the honour of proposing this very important toast of the past and present students of the National Dental Hospital and College, and on this occasion I beg to couple the names with that toast of Mr. Relph as a past student and Mr. New as representing the students of to-day (cheers).

Mr. H. J. RELPH stated that it was not his intention of making a long speech, as in his opinion long speeches were not calculated to improve the digestive organs after such a dinner as he had just partaken of. It was a very great pleasure to him to attend the dinner as a past student, inasmuch as it afforded him an opportunity of meeting old students and also of making the acquaintance of new ones. He referred to the Hospital Museum of comparative anatomy, and to the absence of any specimens of the reptile classes. known as "Chronics."

Mr. G. H. NEW responded to the toast for the present students, and described some of the achievements of the Hospital students in various forms of athletics. He also reminded the company that a certain dance and smoking concert were to be held within a short time, and hoped that many gentlemen present would attend.

Mr. C. W. GLASSINGTON:

Gentlemen, many of you will remember that in years gone by we used to have a very long list of toasts, and on referring to the present one you will see that we have tried to cut it down. There has, however, always been one toast on the list, that is the toast of our Visitors (cheers). I think we have about our usual number of visitors here to-night, perhaps not quite so many because some are engaged at the College of Surgeons. Most of our distinguished visitors sit at the top table, and I, from here, have a good view of them. There is our old friend Mr. Smith-Turner (cheers), and in my alluding to him as an 'old friend' I am sure he will not mind: then there is Mr. Tomes (cheers), and all of you well know that he has been elected on the Medical Council, and we feel quite sure that the interests of the Dental profession are safe in his hands. Then there is the Dean of the Middlesex Hospital here (cheers), evidently well known to both past and present students; then our other old friend, Dr. Gaddes (cheers). There are very many others whom time will not permit me to mention, but to one and all we, the National Dental College, try to give them a very hearty welcome here, and trust that it will for many years be our pleasure to have them here at this annual festive gathering. Gentlemen, without any further words, I will ask you to drink the health of the Visitors, and I couple it with the name of Mr. Charles Tomes.

Mr. C. S. TOMES in replying said:

Mr. Chairman and Gentlemen, I was asked to say a few words to-night by your Dean, Mr. Spokes, and it shall be a few. I felt myself in a little difficulty, as one does always on these occasions, as to what I should talk about. It is perhaps because the meeting of the Medical Council does not take place until next week that I cannot say that which would have interested you most, as until it meets, the subject is somewhat of a confidential nature. I thought over what I could say, and I confess that I have had a little difficulty in finding anything that would do. I thought however, at least of something which has interested me of late, and it is said to be a safe thing to speak upon; but the drift of what has been said this evening has led us a little away from it, and the few things which I had thought of saying, do not seem to come in. I think that we may all of us be very grateful to our Chairman, Professor Gotch, for having struck out on one of these occasions on a line which is original and which is new. He has given us suggestions that we have not heard before. He told me in the progress of dinner that what he was going to say would probably offend me, and I told him we did not claim any special merit in that respect, but that we should all be open to candid opinion, and that it would be difficult to offend us by any candid criticism of a friendly nature. I do not mean to say that I agree wholly with Professor Gotch, but I do not think this is an occasion to enter into anything that might be called controversy, and still less would it become me as a visitor to set to work to controvert that which has been said by another visitor, and that visitor our Chairman; but as I said before I do not quite agree with him in all particulars, and although he has deprecated examinations,—said a good deal against examinations in fact, nevertheless examinations are the end of the curriculum, and they are to a certain extent, that to which the curriculum is intended to lead up. I should like Professor Gotch, if he has an opportunity, to go and be present at one of the examinations at the College of Surgeons or elsewhere. I speak of the English College of Surgeons simply because I know it is one of the best, and I think that if he went there he would find that to a certain extent his criticisms are met; that is to say, that in the questions asked in the examination a great deal that he has deprecated as not being entirely necessary to the curriculum is practically left out, and a great deal that he has indicated as desirable for the curriculum is taken in and made the subject of examination. I do not mean to say that that meets his criticisms entirely, but I think he would find that if he went to one of these examinations, the examination at all events would stand as well in his eyes as most examinations. Well, I do not propose, as I said before, to enter into any controversial matters. Our curriculum has been in existence for a considerable length of time, and the only other answer that I make to Professor Gotch is that whatever its faults are, its practical results have been successful, and on the whole the educational standard has also, and by Educational Standard I mean a good deal. I mean an education which is well adapted towards the purpose for which it is intended and not merely academical. In regard to the quality of the men it has turned out, and in one detail I think it has proved itself to be a success, viz., that if I look back to those students who have most distinguished themselves in the examination of their own hospital or of any examinations before public bodies like the College of Surgeons, those students are for the most part men who have come to the front afterwards, and were these examinations misdirected I venture to think that that would hardly have been the case. I have given Professor Gotch full credit for the originality of what he has said to-night, but I wish to take a little of that originality away. A great deal more than a century ago, about 1720, a pamphlet was issued by a member of the Corporation of Surgeons, and in that pamphlet a complaint was made that the College of Surgeons had not fulfilled its duty, and the writer went on to say that Oculists, Aurists, Dentists or those who intended to practise as such, should be masters in their own department, as likewise should those who intend to cure the deformities of the body. Now that comes like Professor Gotch's surgical degree with a special knowledge of dentistry. (Loud cheers).

Mr. SPOKES:

We now come to the last toast of our list, the toast of our Chairman (cheers), and you yourselves, gentlemen, are the best judges of how Professor Gotch has acquitted himself of his duties to-night, and therefore it does not really require many words to commend this toast to you. It is an extremely difficult thing for me to say anything about Professor Gotch, the greatest difficulty lying in the fact that he is here with us; but he himself incidentally has referred to me as an old friend of his, and I suppose it is in consebuence of my perhapf knowing somewhat more about Professor Gotch than the rest of the National Dental Hospital friends that it has enabled me to say a few words now. I do not know quite how long it is since I first met Professor Gotch, but it was in our school days, and even in that early time he gave some evidence of the characteristics which have been proved to exist since in his behaviour and in his career. I may say, gentlemen, that I consider it one of the most satisfactory things in my life to have known your Chairman and to have been associated with him at University College. It is said that you cannot know anyone properly unless you have lived under the same roof with them; I have had an opportunity of confirming that opinion. Professor Gotch was always a good mathematician, even at school, and I well remember when he took the scholarship for Logic and Moral Philosophy at London University. I mention this to show you the character of our Chairman as a good all-round man.

I think you will agree with me, gentlemen, that I am not making a mistake in telling you something to interest you still more in our Chairman. We were associated, as I say, at University College, and it was after the close of our time that we found ourselves in South Africa at a time when there was considerable disturbance in the north-east corner of the Transvaal. Professor Gotch was appointed by the Transvaal Government (eighteen months after the annexation) to look after the wounded. I was, unfortunately, then parted from him, he was about eighty miles away in one valley and I in another I, however, heard one day that his camp had been rushed by Sekukuni s kaffirs, and the horses and cattle taken away. It is a striking fact, however, in Professor Gotch's character that he was not so much concerned in this cattle raiding as in preparing to treat the wounded as they were brought in to him. I was told by one of the officers present that they all very much admired and were very much amused with the way he gaily set out all his bandages in a row in order to be prepared for any eventualities. He behaved, I believe, on that occasion, and I have always liked to remember it, with a great deal of pluck.

There are many other things that I might tell you about our Chairman, but after that he went round the world, and I unfortunately lost sight of him to a great extent. He went to Liverpool after being Sharpey Scholar at University College, and you have heard from him as to what he was able to do up there. Since then he has been at Oxford, where, I think you will agree, his time is extremely occupied, and I think it is in his favour to come away at inconvenience to himself to our dinner to-night and make it so successful (cheers). Professor Gotch is a man of large heart and many sympathies, and from what I incidentally heard of him in bygone years, there was never an opportunity of helping a fellow student who might be hard pressed allowed by him to pass. I know there are men now leading upright and honourable lives who, but for the guidance and advice that Professor Gotch gave them in his student days would not have held the positions they do. Gentlemen, I will not detain you any longer, but will content myself by asking you to drink to the health, long life and prosperity of our Chairman, Professor Gotch (loud cheers).

The CHAIRMAN;

Gentlemen. it is very late, and I can only briefly thank you for your great kindness this evening, and to say that I consider it a very great honour to have been invited by my old friend the Dean, to represent the Chair on this occasion. It is perfectly true that we were out in Africa together, it is perfectly true that we often lost our way on horseback, and I remember quite well being housed in a very poor and miserable place kept by one man, with nothing all round except the dreary country. That place however, is now the city of Johannesburg. It is perfectly true, too, that my camp was, according to military accounts "rushed." I do not, however, remember about the bandages, but remember that I was given a firearm by one of the gentleman there, and told to fire at a certain tree close by if necessary. I did not however fire it, and I afterwards discovered that it was sighted at about 1,000 yards.

Well, gentlemen, I have one apology to make, and that is, I hope you will pardon what I said in my opening remarks. I feel that the prosperity of Dental Surgery is a matter of great importance, and I feel that I had a right to express my opinion. I also think I have a right to think it until I see fit to change it.

The final remark I have to make is that it has been a great pleasure to me to have presided here, not only for the pleasure of meeting old friends, but to come across men who I have not previously met, and it is a pleasure to preside over a dinner which has been so admirably organised. It has also been a great pleasure to listen to the excellent singers, Mr. Smith's singing for instance, and Mr. Braine's recitations, and to have, at the end, my West country birth and life remembered in a song by Mr. Rushton, which we have just heard. Gentlemen, I thank you very much. (Loud cheers).

During the evening there were songs by Messrs. Alfred Smith, Pontiss-Lines, Hopewell Smith, Wallis Arthur, and W. Rushton. Mr. E. W. Roughton contributed a violin obligato, Mr. H. C. Carter did some very amusing paper-folding, and Mr. Frank Braine's recitations were as popular as ever. Mr. Sinclair Mantell was at the piano.

## LIVERPOOL DISTRICT ODONTOLOGICAL SOCIETY.

### SYLLABUS FOR SESSION, 1898-99.

Oct. 18th.—"Empyema of the Antrum of Highmore." Wm. Permewan, M.D., F.R.C.S.

Nov. 22nd.—"Dental Ethics." W. H. Waite, L.D.S.I., D.D.S.

Jan. 17th.—"Neuralgia." J. P. Roberts, L.D.S. Ed.

Feb. 21st.—Demonstrations at the Dental Hospital.—Various Methods of Continuous Gum Work. (Members interested in this Work are specially invited to communicate with the Hon. Sec., as he will be glad to have offers of Demonstrations.)

March 21st.—"Notes on Regulation and Retention Appliances." (Illustrated by Oxy-Hydrogen Light.) E. A. Councell, L.D.S. Eng.

April 18th.—Annual Meeting. Election of Officers, Council, &c.

Meetings are held in the Medical Institution (with the exception of the Demonstration Evening). Chair will be taken each evening at 7.30 p.m.

JOSEPH A. WOODS, Hon. Sec., 76, Mount Pleasant.

## Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester during the month of OCTOBER, 1898.

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| Number of Patients attended | 877 |
| Number of Extractions | 631 |
| Number of Extractions under Anæsthetics | 345 |
| Gold Stoppings | 159 |
| Other Stoppings | 255 |
| Miscellaneous (advice, temporary fillings, scalings, dressings, &c.) | 241 |
| Gold and Porcelain Crowns | 29 |
| Inlays | 0 |
| Total | 2537 |

W<sup></sup>m H. JONES, L D S.Eng., *House Dental Surgeon.*

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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# ANKYLOSIS OF HUMAN TEETH TO THE JAWS.*

By Mr. STORER BENNETT.

Mr. President and Gentlemen,—The attachment of teeth to the jaws by means of bony ankylosis, though common enough in many fishes and reptiles, has hitherto been pronounced by our best observers, either as impossible, or at any rate as never taking place. I shall endeavour, however, to show how dangerous is the assumption in pathology that anything "never occurs," simply because it has never been our fortune to meet with it.

Some two years ago a specimen resembling a cherry stone in shape, but bony in appearance, with certain gouge marks on its surface, was sent to me by Mr. Whatford with the following history. For a considerable time a lady had suffered with profuse discharge through the gum in the region of a lower molar. For this she consulted a neighbouring practitioner who diagnosed a buried root, and endeavoured to extract it. Failing in his first attempt ether was administered, and after very great difficulty and an operation occupying nearly an hour, the specimen sent to me was removed.

Though seeming to consist of bone, at one point a tiny piece of root seemed visible, and I therefore removed a section through this portion for the microscope, and found to my surprise that I had a longitudinal section through a root closely embraced by bone, with which at some parts it was so intimately blended, that it was impossible to say where one tissue ended and another began. The tooth and bone in fact were ankylosed.

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* Read before the Odontological Society of Great Britain.

At the Dublin Meeting of the British Dental Association I showed this specimen, and then learnt for the first time that Mr. Hopewell Smith also had a section which he had made while House Surgeon at the Dental Hospital of London, from a case that came under the care of Mr. E. Lloyd Williams. This case was described, and microscopic slides exhibited, by Mr. E. Lloyd-Williams, at the annual meeting of the British Dental Association in Birmingham, 1893. This patient was a man also suffering from suppuration, for which an upper bicuspid and molar were removed, with large masses of bone attached to them. Microscopically these teeth were found to be attached by ankylosis to the bone, no line of demarcation between the two tissues being traceable. In the bicuspid, which was decalcified before cutting, giant cells filling up the lacunæ of Howship are in many places beautifully shown, while the molar, of which a ground section is made, shows with equal beauty and equal certainty that the tooth and bone were ankylosed together

Curiously enough M. Choquet of Paris sent some lantern slides of a case of ankylosis which I have the pleasure of exhibiting this evening, but I have had no opportunity of examining the original specimen, though I believe Mr. Hopewell Smith has been more fortunate.

These three cases then are enough to establish the possibilty of the occurrence of ankylosis, and a small amount of positive evidence is far more convincing than any amount of negative assertion. Another specimen, however, was presented to me this summer by one of the students who was attending my lectures, and which proved as fine a specimen of ankylosis of a lower molar to the bone as any I have hitherto met with. In this as in the last case, the bone is of the loose cancellated character we commonly meet with in what has been described in fishes, &c., as bone of attachment, but which is, of course, normal in them, though pathological in human beings.

Lastly I have re-examined an old specimen which has been in my possession for some years—which presents appearances I have hitherto attributed to other causes, and am forced to the conclusion—especially viewing it by the side of the other sections, that it also is a case of true ankylosis.

Mr. President, you will say, I am afraid, "that these are at best but dry bones," and in a sense this is so, yet I think the subject has an important bearing on the operations of replantation and transplantation of teeth. In replantation, it is true, if the operation is undertaken early, we may hope for re-establishment of the circulation in the still living periosteum; but if the operation is delayed, or in cases of transplantation, where teeth are used which have long been strangers to a mouth, the only chance on which success can be expected, is in ankylosis being established.

It is interesting to enquire why this condition has been so constantly denied. In the case of joints, or of two contiguous bones, we know that ankylosis may occur, and in these cases we may have the disappearance of intervening capsule, ligament, synovial membrane, cartilage and periosteum, and a growth of new bone which unites the two originally separated by all these tissues; in the case of teeth we have but an intervening periosteum. Why then is disappearance and replacement by osseous tissues considered such an impossibility?

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# INAUGURAL ADDRESS.*

By JOHN FAIRBANK, M.R.C.S.

Gentlemen,—I have in the first place a very pleasant duty to perform, it is to thank the Council and members of this Society for the honour they have conferred upon me in electing me president for this year.

Sensible of my unworthiness to hold so distinguished a position, I am at a loss to find adequate language to express my great appreciation of what this Society has done in the past, and is now doing for the dental profession both at home and abroad.

This Society has included amongst its members the most distinguished ornaments of our profession, men who by their original researches in the various fields of dental physiology, pathology, surgery, and mechanics; by their energy in promoting the formation of kindred Societies, such as the British Dental Association, but chiefly by securing through the L.D.S. diploma, and the Dentists' Act, the recognition of dental surgery as a distinct special branch of general surgery, have raised the status of our calling.

When I entered the profession in 1862, a minority only of those practising dental surgery in England were qualified, and they chiefly possessed the diploma of M.R.C.S.

In 1859, it occurred to certain members of this Society, the late Sir John Tomes being, I think, the originator of the movement, to create a special diploma, the L.D.S., the possession of which entitled the holder to call himself a dental surgeon, and gave him a legal right to practise as such. It recognised the special mechanical nature of this branch of surgical practice, and inaugurated a special system of training and examination. This was followed in 1878 by the Dentists Act, which obliged everyone entering the profession after the passing of the Act to possess either the diploma of L.D.S. or the full medical and surgical qualifications, before they were entitled to practise as dental surgeons. In fact it made the L.D.S. the dental surgeon's qualifying diploma, and thus completed the most important step ever taken in the interest of our profession in this country, and for which we can never be sufficiently grateful to its originators.

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* Delivered before the Odontological Society of Great Britain.

At the time, however, it was opposed by a considerable number of surgeons practising dental surgery, and I at that time, young and inexperienced, with really no fixed opinion on the subject, was induced by a friendly neighbour to join their ranks and oppose this important reform. Their contention was that they were surgeons, and that they practised dentistry as a special department of surgery. They objected to be classed with men who did not possess the full medical and surgical qualifications, and shut their eyes to the importance of the special training which the dental surgeon required. They failed to see that the majority of a dentist's operations necessitates a very high degree of mechanical skill, which could only be acquired by special teaching and practice, and that a knowledge of medicine and surgery, though of the greatest importance in enabling a dental surgeon the more perfectly to perform the manipulative operations and to deal with certain diseases of the oral cavity, would be totally inadequate to prepare him for the performance of the mechanical operation itself.

I do not want, gentlemen, to underrate the advantages of a surgical and medical training to a dental surgeon. The former, viz., surgery, fits him to perform more perfectly the operations which come into the province of a dental surgeon: it helps him to appreciate the delicacy and the sensitiveness of the structures he has to deal with , it makes him sympathetic, while it induces a careful and conservative manner of treatment. The study also of medicine is necessary, to enable him not only to treat locally the various affections of the gums, periosteum, &c., but to advise his patients as to their general health, when the conditions of the oral cavity indicate that such a course is necessary. It is a matter for regret, that the physician only examines the patient's tongue, to the neglect of the rest of the mouth, thereby often missing symptoms which, when observed by an educated eye, would prove a most important and infallible guide to a correct diagnosis of the patient's condition.

But, gentlemen, not only must the dental surgeon have a medical and surgical training; he must also be a mechanic, and have, what we objectors in '77 or '78 thought too little of, a thorough special mechanical training.

This, I consider, is one of the chief objects aimed at in the L.D.S. course of study, and that this object has been partly obtained is shown by the higher grade of work that one sees now in the mouths of patients. But I am afraid there still remains a little of the leaven with which I was leavened in the early seventies, and that there is still a tendency to overrate the advantages of our being surgeons, and to underestimate those of our being accomplished dentists.

What I want to do is to bring into the greatest prominence the immense amount of mechanical skill required in our daily practice, and the necessity that our students should have the highest training, and an examination of the most searching nature in that department of their curriculum. It is nearly forty years since the L.D.S. Eng. diploma was instituted, and those who were practising prior to that date must bear witness to the enormous improvement that has taken place since that time. Still there is much to be desired, and there is great room for further improvement. I feel it myself, whenever I come across a mouth with teeth perfectly filled, or a set of artificial teeth perfectly adjusted and shewing evidence of their being the handiwork of an artist. It is because I feel so strongly on this subject that I am dwelling on it to-night.

An amusing story is told of the late Dr. Thomas W. Evans, to the effect, that when quite a baby crawling on the floor, he was observed by his mother to become all at once very quiet, and upon her going to see the reason, she found him busily engaged in trying to poke some tin foil into the hole of a bead. This story, originally told by Dr. Evans, indicates in a striking manner a point I consider of great importance, and that is, that where we have the opportunity of influencing young men who are making a choice of a profession, we should endeavour to secure for our own branch, those who display a special talent and love for mechanical pursuits. I would suggest 17 as a suitable age for leaving school (a boy ought then to be quite able to pass the educational examination required by the Royal College of Surgeons), and for commencing his apprenticeship, which is for three years. Two years of this should be passed in working eight hours a day at the bench, whilst the evening may be devoted to the study of chemistry, metallurgy and elementary biology. I do not agree with the practice which I believe is only too common, of dental pupils serving their apprenticeship by looking in at the workroom for an hour whenever they feel disposed. That is not the way to learn the mechanical side of dentistry. Neither do I think it advisable for dental surgeons to have more than one pupil at the same time. They either have not sufficient time at their disposal to teach them, or else they have not enough artificial work to give them constant occupation, and it is impossible to teach a pupil to make and to fit in dentures, and correction plates, unless his work is really intended for the mouth (probably in many instances the best place at which to learn mechanical dentistry is a hospital with a specially organised department for that purpose).

Then as to the practical teaching at the Dental Hospitals. The greatest possible amount of supervision should be given to the student whilst acquiring the art of treating and filling teeth. During *every* stage of an operation, he should be under the eye of a demonstrator until he has acquired perfection in that stage. (I do not know what course the Dental Hospital pursues, I am merely giving my own thoughts on the subject.) Of course this means a great many demonstrators, for one demonstrator ought not to have more than six or eight students to overlook; but the demonstrators might be chosen from advanced students, and the more perfect the supervision in the early stages, the greater number of men there will be available for demonstrators. I hold that teaching a class by demonstration on a patient is not sufficient or satisfactory, unless the class is an advanced one. A student should be carefully overlooked and helped in each operation that he is performing. Take, for instance, the opening up and cleansing of a pulp cavity in an upper or lower molar tooth. I am convinced that it is possible for a dental student to pass through the whole of his curriculum, and unless he has been carefully supervised in his work, to be incapable at the end of his time of thoroughly performing the various operations required in the treatment of pulp canals.

However much one may object to masses of gold showing in the front of the mouth, one must admit that gold makes the most satisfactory filling; it preserves the teeth, and is neat and clean in appearance, but unfortunately it is by far the most difficult material to insert. Hence the dental student ought to devote the *greater* portion of his time to gold fillings, giving at the same time due attention to the insertion of porcelain inlays, the making and fixing of gold crowns, and the manipulation of amalgam and osteo fillings;

for as the work is at the Dental Hospital, and as the student is taught to practise there, so will his work be after he has left the hospital.

I therefore feel very strongly that perfect gold filling and the treatment of pulp canals are two of the most important operations to be taught and mastered at our Dental Schools, for it is to the young men just fresh from the hospital we older men should be able to look in order to relieve us of this arduous branch of our profession, and to raise generally the standard of our operations.

There are circumstances which cannot be overlooked in connection with the practice of our profession here in England, circumstances that influence the character and quality of our operations.

Let me take first the question of competition, a very healthy incitement to good and thorough work. There is the competition arising from numbers and the competition arising from the influx of more accomplished dental surgeons; over the former we have little or no control, but over the latter a very considerable influence is wielded by those engaged in the training of the dental student, by the Board of Examiners for the L.D.S. diploma ; and lastly, by those upon whom falls the responsibility of appointing fresh men, when vacancies occur in the staffs of teachers and examiners.

There is also the temperament of our patients to be considered. This is not an unimportant item, influencing the quality of our operations. We practising in England are not favoured in this respect. I consider the average Englishman is more sensitive under operation than the foreigner ; more imaginative, and much more inclined to faint. This is no slur on his bravery, for on that point there has never been a doubt cast.

I cannot refrain from quoting here an extract from a letter referring to the Fashoda incident, which appeared the other day in one of the daily papers. "When old Admiral Boscawen was post-captain in command of a battleship of the line in mid-Atlantic, his first lieutenant in much excitement came into the cabin one day and said, "Three French men-of-war, sir, are in sight and are bearing down on us; what shall we do?"

"'Do?" said Boscawen, in a voice of thunder. "Do? Damn 'em, fight 'em!'"

Without entering more fully into the interesting question as to whether we are or are not less able to bear pain than foreigners; why is it that women and girls hardly ever faint and men and boys are always fainting? I think that firmness of purpose, combined with patience and gentleness, would be found to result generally in the patient bracing himself up to bear the tedious process of filling, with patient courage.

There are two points that I have noticed frequently in operating on very sensitive teeth and patients. One is, that in removing the carious dentine from an acutely sensitive tooth, after a few firm cuts with the excavator the sensitiveness almost wholly disappears, and the other is, that patients who are most impatient during the preparation of the cavity, give no cause for complaint in that respect, during the most prolonged operation of inserting the filling, whatever it may be.

There are two other influences more or less important affecting our work in the mouth. There is the question of light, and in this respect we in England, and in London more particularly, are considerably handicapped, and while our *confreres* abroad are revelling in brilliant sunshine, we are often compelled to rely on artificial light.

The other influence which has a controlling effect upon our work is the question of fees. As our patients are not equally rich, they may not be able to afford to pay for expensive gold fillings. In that case we must be satisfied with the more modest amalgam; but here, gentlemen, although the purse may control the material of the filling it should have no effect on its quality or on its conscientiousness. And while I am on this subject, a delicate subject for the President of this Society to handle, I must say that I do not think we should lose any opportunity, when it presents itself, of talking to parents plainly about the necessity of the most perfect operations being performed upon their children's teeth; what this means in the way of visits and fees, and how this matter should be considered and provided for in the same manner as they attend to and provide for their children's education.

The dividing up of dental surgery into three specialities or sub-specialities has never been adopted in this country and I hope never will be. Surgeons and physicians have not been much in favour of specialities, with the exception, perhaps, of that of dental surgery, and I think we are too fond of our liberty to confine ourselves simply to the making of artificial dentures, though each is a separate art, requiring a distinctive skill, and it is rare indeed to find a dental surgeon equally efficient in each.

The accomplished filler of teeth may feel inclined to shirk extractions while he does not care to be bothered with the trying work of making dentures; or the "Arracheur des dents," as the French call the dental surgeon, may prefer that sharp and decisive mode of treatment to the more tedious process of filling. Nor have we adopted the plan of having some one to assist us in our operations. There is no doubt that the services of assistants in the operating room are very acceptable. They get everything ready for the operator, and do everything except the operation itself, and in that they *assist*. But unfortunately they are in the way when you do not require them, and they destroy the private nature of dental practice. On the other hand, the quick and ever ready help of a competent assistant often makes a difficult operation easy, and helps the operator to succeed, where without skilful aid and countenance he might have failed.

Lastly, gentlemen, we depend largely upon our materials and instruments in doing good work, and for these we are dependant upon the dental depôts. Would I could give their wares my unqualified approval, especially in regard to the quality and temper of the steel with which our instruments are made, and the colour and texture of our artificial teeth. The excavators, the enamel cutters, the scalers, have sometimes been so soft that I have been doubtful whether they were made of good steel; on the other hand, delicate instruments like pulp canal reamers, are sometimes so badly tempered, just below the head, or along the slender of the instrument, that they snap at the slightest shock.

Then as regards our artificial teeth, why cannot they be made to look more *real*, and less like porcelain, and tinted in such a way as to defy detection, instead of looking so black at night that they can be at once recognised, although they may have passed muster in the daytime. Gentlemen, is this not partly our fault? are not we too careless in the matter? Can we expect business men of themselves and unaided, to appreciate the various forms, colours and textures of teeth as we do, or to sympathise with our feelings when we have to work with an instrument made of inferior steel. Let our young men take these questions up; let them interest themselves in these and kindred subjects of equal practical importance, and their labours would, I know, be highly appreciated by this Society. Such a study as that of amalgams, with a view to arriving conclusively and authoritatively at the best formulas, or to devise a perfect plan for filling the pulp canals of teeth, not only the large ones, but those which are extremely small, and the material to be used.

But, gentlemen, I have already kept you too long, in my feeble endeavours to impress upon the members of this Society the necessity for our being armed at all points against the common enemy, caries; an enemy in the subduing of which nature does little or nothing to assist us.

The pure surgeon makes huge gashes in the flesh and saws through or gouges out the bone, leaving a most unsightly wound for Dame Nature to heal. She rounds the jagged surface, heals the divided edges, and completes what the surgeon has begun. We have to do *everything*, and if we fail, if we do not repair by the most perfect operations possible, the breaches which caries has made, the operation is ineffectual, our skill is discredited, and the patient is disheartened.

EXCLUSION OF PARENTS FROM THE OPERATING ROOM.—Dr. Belcher advocates this plan where possible, as he says with much truth that many parents spoil authority, and the child is not to be controlled, but looks to the parent for sympathy, and will not make an effort to control himself. After the dentist has obtained the confidence of the child he can do almost anything, so long as he does not deceive.

REPAIRING BROKEN PLASTER MODELS.—Drop half a teaspoonful of fine plaster on the rim of a plate and flow a little water into the plate so that the plaster is soaked, take a fine camel's hair pencil and dip up the wet plaster, almost as thin as water itself, and smear over the crack as the broken parts are placed together; the water soaks into the model and carries the moist plaster into the crack, firmly reuniting the parts; when thoroughly hardened chip out tiny patches along the broken edges to afford spaces for the lodgment of the new plaster.

British Journal of Dental Science.

LONDON, DECEMBER 15, 1898.

# REFORM.

The person who once wrote "Everything is for the best in this best of all possible worlds," enjoyed an optimistic nature fortunately rare. The idea which we much more readily agree with would be that everything is susceptible of reform, in order that this world, and our lot in it, may be improved. There are many urgent reforms required in our profession, and the letter recently appearing in our columns from "L.D.S." referring to the Amendment of the Dentists' Act doubtless enlists the sympathies of most of our readers. At the same time we must remember that our affairs are governed by the General Medical Council, that our interests are very similar to those of our Medical brethren, a much more powerful body, who are suffering from similar evils, and that a much better chance of obtaining reform will be obtained by presenting a united front, not by plunging precipitately into isolated action. That medical men are also eager to remedy existing evils is clearly shown by a resolution brought forward at the last meeting of the Council of the Royal College of Surgeons of England, that the Council, after its successful efforts in winning the reform of the Army Medical Service, "should now turn its attention towards remedying the notorious abuses which exist in connexion with Civil Medical practice."

The General Medical Council has concluded its session of nine days, and even after this prolonged sitting was obliged to postpone many items until its May meeting. The Report of the Education Committee was discussed, and it was resolved to eliminate as a Preliminary examination, the examination of the College of Preceptors for its second-class certificate of both the first and second divisions after January 1900. This step we feel sure is only the precursor of further ones for raising the standard of preliminary examination, and we should not be at all surprised if before very long it were raised to the level of the Matriculation examination of London University. We expect that in May the Committee will report the time limit at which certain other junior examinations will no longer be accepted.

The Committee consisting of the President, Mr. Tomes, and Mr. Horsley, appointed to consider the Companies' Acts, with the object of preventing the registration of Companies to carry on medical, surgical, and dental practice, also presented its report to the Council. It will be remembered that previously the Board of Trade had been memorialised by the British Medical and British Dental Associations, the Medical Defence Union, the Royal College of Veterinary Surgeons, and the Pharmaceutical Society. The Board of Trade while acknowledging that a grievance existed, was of opinion that the remedy did not lie in its hands. The aforesaid bodies then approached Lord Herschell with the object of introducing an amendment in the Companies' Act Amendment Bill, but this Bill has been shelved for the present. An attempt was then made to utilise the Pharmacy Bill to which the Lord Chancellor had introduced an amendment dealing with the evil as far as pharmacy was concerned. But the Pharmacy Bill had already passed the Commons as an unopposed Bill, so it was thought advisable not to proceed further in the matter. The Committee seems to have now somewhat changed its tactics, and instead of endeavouring to insert a clause in the Companies' Bill they have approached the Lord Chancellor with a new special Bill, which we hope may be brought forward next Parliamentary session. What the draft of the Bill is we do not know, and we consider that until it is brought into Parliament the Council is exercising a wise discretion in keeping its provisions to itself, but we hope it may be on the lines that no company may do with impunity what a private person may not, that the act of registration may not be a protection against legal proceedings. We are given to understand that it will strengthen the hands of the Committee if any flagrant instances of the abuse of the Medical and Dental Acts can be brought to their notice, such as for instance, the case cited before the Council in which a number of unregistered women have formed a Company to act as doctors, dentists and chemists. We will take care that any such cases forwarded to us and duly authenticated shall be placed in the proper hands.

We believe that the subject of "covering" will be dealt with somewhat fully at the next meeting of the Council, both as regards doctors and dentists, and also with their mutual relations together, as for instance in the matter of giving anæsthetics for unregistered practitioners. We consider on the whole the outlook is encouraging, and we feel sure that patience will be rewarded and that reform is on the wing. The quack and impostor will not have such an easy time of it in future, and the rights and privileges of the duly registered practitioner will be more securely safeguarded by the legislature which has demanded that registration for the protection of the public.

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A Colonial L.D.S. accepted on our Register.—Mr. Bailey, a licentiate in dental surgery of the Victoria University, New South Wales, has been admitted to the Dentists' Register. The curriculum and examination of the Victoria University are practically identical with those of our bodies under the General Medical Council.

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The First Woman Dentist.—This lady Frau Dr. Hirschfeldt-Tiburtius, has lived and practised for twenty-six years as a lady dentist in Berlin. The writer of the article in the *Englishwoman's Review* says:—"Germany, so far behind England in all other things appertaining to the progress of womanhood, is so far before her in the introduction of dentistry as a profession for women; while at the present time there are, so far as the writer knows, only two lady dentists in the whole of England, both of whom are in London, and one has only recently commenced practice there in October, 1894. When Frau Dr. Tiburtius celebrated the twenty-fifth anniversary of her establishment as a dentist in Berlin she received a congratulatory address signed by no fewer than twenty other lady dentists who were then in practice, scattered over various parts of the German Empire. This German lady was the daughter of a Lutheran pastor, who had no fortune to give her ; so as a means of providing for her she was married before twenty to a country gentleman, who turned out a miserable match. She procured a situation as a housekeeper. She had, however, a soul that soared above this subordinate position, and after a time she resolved to become a dentist. Her friends contributed the necessary funds, and the lady, undaunted by hard work and hard living, obtained in Berlin instruction in the mechanical part of her profession. Then, acting on the advice of an American dentist in Berlin, started for Philadelphia to pass through a course of dental surgery in the Dental College.

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EXTRACTION FREE WITH A POUND OF TEA.—"Surgeon" writes to the *Daily Mail* as follows :—"A few days ago I was purchasing some tea at a West End grocer's, when the young woman serving said that if I liked to make my order up to a pound weight, I could step into the parlour and have a tooth drawn free of expense. I wonder how long at this rate it will be before grocers have a physician in their back parlours, to give away prescriptions with a pound of tea, or surgeons to perform operations under similar circumstances."

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ANOTHER DEATH FROM CHLOROFORM FOR TOOTH EXTRACTION.—We hear from Melbourne that recently a young lady (Miss Edith Horsfield) aged 22, was placed under chloroform at Dr. D. G. O'Neil's dental surgery, Bendigo, to have some teeth out, and died under it. Dr. Hugh Boyd administered the anæsthetic. Deceased showed alarming symptoms after the teeth were drawn, and Drs. Long and Murphy, of Bendigo, were called in. Drs. Boyd and Long applied the customary means for restoring animation, but without avail, and when Dr. Murphy arrived the girl was dead.

THE ignorance regarding the danger of using chloroform for dental operations, and the ignorance with respect to the utility and harmlessness of gas, are tremendous. We lately elicited the opinion that gas was almost as dangerous as chloroform from a young man who had recently graduated in medicine from a Scottish University.

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NEW COMPANY REGISTERED.—Flintine Dental Company, Limited.—This company has just been registered, with a capital of £2,000, in £1 shares, to acquire and take over as a going concern the business now carried on by George Popplewell and Jane Popplewell, at 96, Langsett-road, Sheffield, and elsewhere, and to carry on the business of dentists, artificial teeth manufacturers and adapters, photographers, photographic publishers, dental tool manufacturers, chemists, druggists, cork merchants, &c. The subscribers are—Charles Veneer, Theodore Popplewell, Mrs. Kate Pembleton, Charles W. G. Usherwood, Joseph B. Redfern, Mrs. Jane Popplewell, John R. Wordsworth, James Smith, George Popplewell, Wm. H. Watkinson, Mary A. Alexander, and Thomas Alexander, all of whom take one share each. We can find none of these names in our copy of the Dentists' Register !

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LEAD POISONING.—Dr. Stephenson writing to the *Lancet*, says that he had been attending a healthy baby a month old when "on Nov. 8th I was hurriedly sent for, the message stating that the infant was dying. I was informed by the mother on my arrival that the child appeared to her to be just recovering from a fit. I found the patient evidently in considerable pain, screaming violently, and with the legs flexed upon the abdomen. My first and most natural conclusion was that these symptoms indicated colic due to imperfectly digested food, but on examining the tongue I noticed an unmistakeable blue line on the gums. This with a history of constipation was quite sufficient to confirm my diagnosis that lead was the cause of the trouble. The child had never taken milk from the breast, but the feeding bottles were, I found, above suspicion, as well as the water-supply and general surroundings. Finally I discovered that the nurse, considered an experienced woman, had been freely dusting the child with a powder, procured by herself quite innocently from a local chemist, and which was shown to me in a packet bearing the label "Powdered White Lead." This had been liberally dusted about the neck and behind the ears, and consequently would at such times be freely inhaled. In addition the powder had been kept loosely upon the mantleshelf where the feeding bottle and a "dummy teat" were frequently placed. I am pleased to be able to add that under the usual treatment, modified to suit the age, the child is making a good recovery." The interesting point to us is that the blue discolouration of the gum usually seen round the teeth is evidently not dependant upon the presence of teeth.

SURGERY IN EXCELSIS.—The triumphs of modern surgery—of which mention has occasionally been made in presidential addresses—are celebrated by an anonymous bard in the New York *Public Health Journal* for October as follows ;—

They sawed off his arms and his legs,
They took out his jugular vein ;
They put fancy frills on his lungs,
And they deftly extracted his brain.

'Twas a triumph of surgical skill
Such as never was heard of till then ;
'Twas the subject of lectures before
Conventions of medical men.

The news of this wonderful thing
Was heralded far and wide ;
But as for the patient, there's nothing to say—
Excepting, of course, that he died.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.—We are compelled for want of space to postpone the report of the meeting of November 7th till next issue.

# Dental News.

## GENERAL MEDICAL COUNCIL.

The session of the General Council of Medical Education and Registration was opened on the 22nd of November, in the offices of the Council, Oxford Street, London. Sir William Turner, President of the Council, occupied the chair, and there was a full attendance of members.

### *The President's Address.*

The PRESIDENT, in accordance with custom, opened the proceeding with an address. The following portion of the address concerns the Dental Profession:—In the month of May the Council appointed a committee consisting of Mr. Tomes, Mr. Horsley, and myself, to take steps to induce the Government to insert a clause in the Companies' Act Amendment Bill, with the object of preventing the registration of companies to carry on medical, surgical, and dental practices. A meeting of the committee, at which Mr. Muir Mackenzie was present, was held early in October, when a discussion took place as to the best means to carry out the instruction of the Council. It was arranged that clauses should be drafted by Mr. Muir Mackenzie and placed in the hands of the Lord Chancellor, This has accordingly been done. It is due to Mr. Tomes to state that he has taken an active and important part in bringing the whole of this question before the notice of the Lord Chancellor:—

Tuesday, November 29th.

### *Registration of Medical, Surgical, and Dental Companies.*

The Council next received a report from the Committee on Amendments to the Companies' Acts, which was in the following terms:—

At the meeting of the General Medical Council, May 30th, 1899, the following resolution, which had been arrived at *in camerá* on May 28th, was placed upon the minutes;—

"That the President, Mr. Tomes, and Mr. Horsley, be a committe to take such steps as they deem most effective to induce the Government to insert a clause in the Companies' Act Amendment Bill, now before Parliament, with the object of preventing the registration of companies to carry on medical, surgical, and dental practice."

The committee was appointed in consequence of information brought before the Council by Mr. Tichborne, that a drug company in Cork, registered under the Companies' Act, had intimated that one of its objects was to carry on the business of physician and surgeons. It was also pointed out to the Council that encroachments on the practice of other professions and businesses for the legal pursuance of which a personal qualification was necessary, were being conducted under cover of the Companies' Acts. The attention of a departmental committee of the Board of Trade, sitting under the presidency of Lord Davey, had been called some time previously by the British Medical Association, the British Dental Association, the Medical Defence Union, the Royal College of Veterinary Surgeons, and the Pharmaceutical Society, to the nature of these infringements of professional Acts, but that committee was of opinion that the matters complained of did not fall within the scope of the terms of the reference made to them by the Board of Trade. They expressed, however, in their report the hope that one of the clauses of the Bill which they had drafted might have some effect in providing a remedy.

The acknowledgment by a Government committee that a grievance existed was an important step gained, and the bodies named approached Lord Herschell with the view of obtaining his assistance in introducing an amendment in the Companies' Act Amendment Bill, which was then being brought by the Goverment before the House of Lords. There was reason to believe that the Board of Trade would not oppose Lord Herschell's amendment. but as the Government Bill was shelved for a time by being referred to a select committee of the House of Lords, the matter has not been further proceeded with.

The committee of the General Medical Council attempted, in the first instance, to prevail upon the Board of Trade to take up the question in its relations to the medical profession. A deputation consisting of Sir Dyce Duckworth, the senior treasurer (in the absence of the President from town), Mr. Horsley, and Mr. Tomes, accompanied by Mr. Muir Mackenzie, waited upon the President of Trade, with whom was Mr. Smith, C.B., and submitted to him a memorial on the subject. Sir Wm. Priestley, M.P., was also present, Mr. Ritchie expressed himself in general terms as perfectly friendly to the objects of the deputation, but was of opinion that the remedy for the grievance complained of was to be found elsewhere than in the proposed Companies' Bill, so that he was unwilling to take any steps in the matter.

Moreover, the chances of any Companies Act Amendment Bill becoming law within a reasonable length of time appeared uncertain, and it hence seemed to be expedient to make attempts in some other direction.

Accordingly, Sir Kenneth Muir Mackenzie, the private secretary to the Lord Chancellor, was waited upon and requested to lay a memorial in substance much the same as that which had been submitted to the Board of Trade before his Lordship.

Very shortly after this, on the occasion of a Pharmacy Bill, which had passed the House of Commons, coming before the House of Lords, the Lord Chancellor introduced an amendment which dealt with the question so far as pharmacy was concerned, and this amendment met with the support in principle at all events, of Lord Herschell. But this Pharmacy Bill had passed by agreement through the House of Commons as a practically unopposed measure, and for that, and possibly other reasons, the amendment was withdrawn by the Lord Chancellor, who, however, intimated in withdrawing it that the matter would be subsequently dealt with in another form. This committee were advised to have a draft of a Bill prepared, which in our opinion would meet the difficulty in the case of the Medical and the Dentists' Acts, and they accordingly requested the standing counsel to the General Medical Council, Mr. Muir Mackenzie, to do this in order that it might be submitted to the Lord Chancellor. This has now been done. The committee ask the Council to approve of their action.

Mr. TOMES, in moving the adoption of the report, said that it was brief in relation to the importance of the subject. There was a reason for that. A good deal of the work of the committee had fallen to be done in a conversational manner with officials of departments of the Government, and the members of Council must know that if they had interviews with officials of practically a private nature, and then went and proclaimed the whole upon the housetops, the officials involved would not afterwards speak so freely as they had done previously. There had been a good many more interviews than were mentioned in the report, and the Chairman and the other two members of committee would be exceedingly pleased to give a good deal of information to any member of the Council who might ask them privately for it. The committee had very good hopes of accomplishing what they were appointed to do. If they looked at the end of the report they would see that the committee were required to have a Bill on the subject drafted. It might possibly surprise some members of the Council that the draft Bill did not appear in the report, but there were a good many reasons for not producing this draft Bill. The Council were not promoting the Bill. The draft Bill was only a suggestion to be placed before the Lord Chancellor to let him see what the committee thought would be effective on the subject. The Lord Chancellor might not adopt that draft Bill or a single phrase of it. The committee did not produce it, for if they did it would give an opportunity to anyone who learned what its contents were to start opposition. A copy of the proposed measure lay in the offices of the Council, and it could be inspected by any member of Council. He asked that all the members of Council should inspect it and assist the committee in getting it passed into law. The committee asked the Council to approve of their action because there was a little change of front in their attitude. They were appointed to get the Government to insert a clause in the Companies' Bill, but they had taken it upon themselves to change their commission, and had approached the Lord Chancellor instead with a new Bill. The committee must ask pardon of the Council for departing from what they were appointed to do. If reappointed they would endeavour to get a Bill that would be efficient. They had to deal with a class of people who were trying all they knew, and employed all the legal acumen they could get to evade the law, and they must really endeavour to get a stringent Act. The evil complained of was not disappearing. No less than three cases had been heard of since they sent their memorial to the Lord Chancellor, and they must use their best endeavour to check the evil.

Mr. TITCHBORNE, as the initiator of the movement in the Council, endorsed everything which had been said; and he wanted to know if there would be any difficulty in considering this secret Bill in the Council, so that all the members might know what it meant. It was so far good to say that they could see it in the office, but they ought to have an opportunity of discussing it and making suggestions.

Mr. TOMES said that the Council were not promoting the Bill. The draft which had been handed to the Lord Chancellor was simply a suggestion for a Bill.

Sir W. THOMSON said that the suggestion was that of three members of the Council. Was there any objection to the whole Council knowing what the suggestion was? Why should they not go *in camerá* for ten minutes to learn what it was?

The PRESIDENT saw no objection to their so doing.

Strangers were thereupon asked to withdraw. On their re-admission the President informed them that the committee's report had been approved by the Council.

On the motion of Dr. MACALISTER, seconded by Mr. BRYANT, it was then agreed that the committee should be re-appointed and should be requested to continue its efforts for the improvement of the law on the subject of companies formed to carry on professional functions. At the suggestion of Dr. McVAIL aud Dr. BRUCE, Mr. Tichborne was added to committee.

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Thursday, December 1st.

The final meeting of the session was held to-day, Sir William Turner being in the chair.

### *Fraudulent Personation of Registered Practitioners.*

The PRESIDENT announced that the following motion, moved by Mr. Horsley and seconded by Mr. Brown was passed yesterday while the

Council sat *in camerâ*—viz.: "That the Executive Committee be instructed to report upon means to secure the identification of registered medical and dental practitioners and to prevent fraudulent personation of such practitioners."

### *Practitioners claiming Medical Status and the Law Courts.*

Mr. Brown then brought forward a notice of motion, as follows:

"That in all cases where a person whose name is not on the *Medical Register* or *Dentists' Register* is charged with an offence before a public tribunal in England and Wales, and it is reported that the accused claims to be a medical practitioner or dentist, it be an instruction to the General Registrar, or in the case of Scotland and Ireland the Branch Registrars, to write to the presiding official of the tribunal stating that the accused person is not a registered medical practitioner or dentist."

The proposal was seconded by Mr. Horsley, but as it was objected that in its present shape it was unworkable, Mr. Brown consented to withdraw it in order to bring it up in an amended form next session.

### *Dental Business.*

Mr. C. TOMES moved that the report of the Dental Committee in regard to the following three cases referred to it under Section 15 of the Dental Act, be received and entered on the minutes. This was agreed to.

Edward Browning, who is complained of by J. Petrikovsky, a journalist, for covering, the dental committee find the facts as follows:

That Edward Browning was registered as having been in practice before July 22, 1878, and that his address in the Dentists' Register is 133, Oxford Street, London, W.

That it is not proved to the satisfaction of the committee that the said Edward Browning did the acts complained of.

The case of Charles John Dalton, who is complained of by Messrs. Marten and Little, for covering, the dental committee find the facts to be as follows:—

That Charles John Dalton was registered as having been in practice before July 22, 1878, that his address in the Dentists' Kegister is 1, Scotch Street, Whitehaven.

That the dental committee, having considered the circumstances, recommend that no further action be taken in the matter.

Henry Rowton, who is complained of by Mr. J. D. Price, M.R.C.S.Eng., for giving a death certificate, the dental committee find the facts are as follows:—

That Henry Rowton was registered in the Dentists' Register as having been in practice before July 22, 1878, in conjunction with pharmacy; that his address in the Dentists' Register is 109, Hall Street, Dudley, and that he is also registered in the Chemists' and Druggists' Register.

That the said Henry Rowton, on May 2, 1898, gave and signed a certificate of death in the terms following: "This is to certify that Edward Fisher, aged 3 days, died on May 2, 1898. The cause of death—Debility from Birth Convulsions.—H. Rowton."

That on July 23, 1898, Mr. Rowton, having been asked by the solicitor of the Council to explain his conduct, wrote the following letter:—

"Gentlemen,—I do not attend patients or pretend to be a medical man, the children were brought to my shop. I told them to get a note for the parish 'doctor' or one for the 'dispensary,' which I suppose they neglected doing—the so-called certificates were information for the 'registrar' which he has often sent them for."

Mr. Rowton did not appear, but a letter was read from his solicitor dated, stating that "his client undertook never again to issue any documents which could be considered to be medical certificates or to attend any patients as a medical practitioner."

That the dental committee, having considered the circumstances, recommend that no further action be taken in the matter.

Mr. **TOMES** said that in the first case the committee found that it was not proved. That was strictly within the province of the committee, because under the Act the committee was qualified to find finally as to the facts. In the second case, the dental committee had a little exceeded its commission. The work that had been delegated to it now was new to the committee, and they had put in the paragraph recommending that no further action be taken in the matter, that was not their province, but the province of this Council, and so he would ask the Council to forgive the dental committee for having in this, their first report and in new circumstances, exceeded their commission, and to amend this part of the report, making it read "that it is not proved to the satisfaction of the committee that the said Charles John Dalton does the acts complained of."

Mr. **BRUDENELL CARTER** said that this did not quite bring out the facts.

Mr. **TOMES** explained that Dalton had written a letter saying that he had taken immediate steps to sever, and within a few days did sever himself from any connection with the town of Whitehaven, and that in fact he had given up the practice of dentistry altogether. In these circumstances it seemed futile to pursue the matter further.

Dr. **MACALISTER** moved that the Council having heard the explanation of Mr. Tomes with regard to the case, resolve to take no further action in the matter.

Dr. **PETTIGREW** seconded this motion, and it was at once adopted.

Mr. **TOMES** said that in the third case, Henry Rowton was complained of for giving a death certificate. This man came under the cognizance of this Council because he was registered in the Dentists' Register. In this case the committee found the case proved; indeed the facts were not denied, and the solicitor wrote stating that his client undertook never again to issue any documents which could be considered to be medical certificates, or to attend any patients as a medical practitioner. Mr. Rowton insisted that he did not pretend to be a medical man.

The **PRESIDENT** said there was this difficulty, that the Council had never thought out any procedure with reference to the Dental Acts, because really these cases had been so very few, and their standing orders were not explicit as to what their procedure was to be. The question arose whether as dental cases were perhaps likely to occur more frequently now, there should not be a form of procedure.

Mr. **TOMES** said that in the letter Mr. Rowton explained that he was not a young man, that he had been ill and that he did not feel equal to come to London, and he assured the Council that all cause for complaint would be removed. Mr. Rowton also asked the solicitor to say that the people who were the objects of his interview were poor people indeed, and could not obtain medical assistance, and that the death certificate was not given as a medical certificate, but only for the information of the Registrar.

Mr. **BRYANT** said it was clear that this was a case of frequent practising.

The **PRESIDENT** said he had had a motion handed to him which had been drafted by the chairman of the Business Committee and which he proposed to put from the chair. It was that the further consideration of the charge found to be proved against Henry Rowton be adjourned to the next session of the Council. If they did that they would show they were still keeping a watch upon him.

After further discussion the Council agreed "That the further consideration of the charge found to be proved against Mr. Henry Rowton be adjourned till the next session of the Council."

*Covering.*

The members of the dental committee have to report that they gave their consideration to certain subjects that had been referred to them by the general council, and now submit to the Council the following recommendations at which they have arrived:—

"That the members of the dental committee recommend the general council to reissue to all persons on the Dentists' Register the notice of November 24, 1892, in regard to the practice of covering unqualified persons.

*The Administration of Anæsthetics.*

In regard to a communication from the Dundee and District Branch of the British Medical Association as to the administration of anæsthetics by registered medical practitioners for unregistered dental practitioners, a practice which the Executive Committee has already characterised as, in its opinion, reprehensible, they adopted the following resolution:—

"That the members of the dental committee agree with the opinion expressed by the Executive Committee that the practice referred to in Dr. Buist's letter is most reprehensible, and recommend that if a charge of covering, in connection with such administration of anæsthetics, were brought before the general council, it should be entertained and investigated."

Mr. TOMES said that it was asked that a covering notice should be issued in regard to the employment of unqualified assistants, similar to that which had been sent out to those on the Medical Register, and the committee recommended that the council reissue to all persons upon the Dentists' Register the notice of November 24, 1892, in regard to the practice of covering unqualified persons, which was very similar to that issued to those on the Medical Register. He moved that this recommendation be adopted by the Council.

Mr. BRUDENELL CARTER seconded the motion.

Dr. MACALISTER asked why the reissue was necessary.

Mr. TOMES replied that there was good reason to understand from information which had come to hand when it was issued before, that the notice did a great deal of good, that it frightened a good many people out of the habits of covering, in which they had been indulging. They had seen that this had happened in the case of the covering notice to the medical practitioners, and it had been thought that it would have a good effect if this were issued to the dentists. Another point was that when one or two cases of covering had come before this Council in connection with dentists, it had been urged in extenuation or as a reason for not proceeding to any extremityy that the persons had not been warned in such a manner as to make them suppose that action being taken was imminent.

The recommendation was then adopted by the Council.

Mr. TOMES, taking up the second recommendation in the report, said that a Branch of the British Medical Association passed a resolution to the effect that action ought to be taken in the matter of registered medical practitioners favouring unregistered practitioners by administering anæsthetics for them. This had relation, as it was worded, to dentists only. The resolution was received by the Council, and referred to this committee. He might say that he took means to enquire whether the practice was general—whether registered practitioners over the country did administer anæsthetics for unregistered dentists, and he combined with the inquiry for his own purposes an inquiry whether they did so for unregistered practitioners, such as bone-setters. He received a large number of answers. These went to show that the practice was exceedingly prevalent in the Midlands. He obtained answers from 25 towns where the medical practitioners were in the habit of giving anæsthetics for unregistered dentists. He found that in some instances the name of the registered medical practitioner was actually put up in the window of the unregistered dentist as giving anæsthetics for him He learned incidentally that in a few cases they gave anæsthetics for bone-setters also. He got confidentially the names of 23 registered medical practitioners who were in the habit, according to his informants' statements---and some of them offered to get positive evidence if it were needed---of administering anæsthetics for unregistered dental practitioners. He thought, therefore, there was very good cause for the Council adopting this recommendation. He had also talked to a number of the leading anæsthetists, and he found that the Society of Anæsthetists had avoided this subject as being rather dangerous ground, but among those to whom he had spoken there was the opinion that the thing was extremely wrong, and should be stigmatised and dealt with. He moved that the Council adopt the recommendation.

Dr. MACALISTER moved: "That the reissue of the notice of November 24th, 1892, be delayed until it could be accompanied by a supplementary notice, to be framed by the legal adviser of the Council, in the sense of the foregoing resolution." That was to say, the resolution pertaining to the administration of anæsthetics.

Mr. HORSLEY seconded this motion, and the Council adopted it.

On the motion of Mr. BRUDENELL CARTER there was received and entered on the minutes the following report from the Executive Committee as to dental business transacted since the last session of the Council, pursuant to the following resolution passed on May 31, 1898:—"That the Executive Committee be empowered to receive and consider all applications and communications relating to dental business (other than matters pertaining to the dental committee) and to report thereupon to the Council.

The Executive Committee received the following communications from the Irish Branch Council:—

"35, Dawson Street, Dublin,
"*October* 18, 1898.

"Dear Sir,—At their meeting yesterday the Branch Medical Council directed me to forward you the following copy of a resolution passed by them: — 'Resolved—That the local registrar shall keep a Dentists' Register in accordance with section xi., clause 5, of the Dentists' Act, 1878.'

"Faithfully yours,
"S. WESLEY WILSON.

"H. E. ALLEN, Esq., L.L.B."

whereupon it was resolved—That this communication be remitted to the legal advisers of the Council with a view to obtaining their opinion on this question.

From the Royal College of Surgeons of England:—

"Royal College of Surgeons of England, Lincoln's Inn Fields,
London, W.C.,
"*August* 5, 1898.

"Dear Sir,—In reference to your letter of June 8, enclosing copies of the recommendation of the General Medical Council respecting dental education and examination, I beg to inform you that the recommendations have been referred by the Council of this College to the Board of Examiners in Dental Surgery for consideration.

"Yours faithfully.
"SIBERT COWELL,
"*Assistant Secretary.*

"H. E. ALLEN, Esq."

From Ernest Harold Christopher Bailey, of Ballarat, Victoria, Australia, registered as a dentist in that colony, that he mihgt be registered as a colonial dentist under section 10 of the Dentists' Act, on the ground that he had passed the qualifying examination of the Dental Board of Victoria, in accordance with the provisions of the Colonial Dentists' Act, 1887.

In support of his application he produced a copy of the Act, his colonial registration certificate dated May 28, 1897, the (Colonial) Dentists' Register, and the Regulations, which would appear to be based on those of the General Medical Council.

"That the executive committee, having considered the application of Ernest Harold Christopher Bailey, of Ballarat, Victoria, Australia, to be registered as a Colonial dentist, and being of opinion that the certificate of qualification produced by the applicant may be properly recognised by the Council as satisfying the requirements of sections 8 and 10 of the Dentists' Act, recommended that the application be granted by the Council.

Mr. BRUDENELL CARTER said the opinion of the legal advisers was that the Irish Branch Council were exceeding their powers.

Mr. TOMES, in moving that the application of Mr. Bailey be acceded to, said that after carefully going through all the papers, he found that the curriculum and the lines of examination were exactly modelled upon those which obtain in this country, and unless the clause in the Dentists' Act, which allowed them to register certain foreign and colonial diplomas was to be a dead letter, this application could not logically be refused. This, he might say, was the first case of the kind.

Mr. MACALISTER said it would interest members to know that this was really the opening of the colonial test.

The motion was adopted by the Council.

## THE DENTAL HOSPITAL OF LONDON.

The Annual Dinner of the Staff and Past and Present Students of this well-known School was held on the 3rd inst. at the Hotel Metropole; Mr. Storer-Bennett, F.R.C.S., presided, and was supported by a large number of friends and guests. The banquet was one of the most successful we remember, and the programme of music and after-dinner entertainment was, if possible, above the average. After the loyal toast, the Chairman proposed the Past and Present Students, and in the course of his speech strongly recommended the young practitioner, whilst waiting for practice, to undertake some original research. There was still the cause of immunity to caries to be discovered. Although the work of Messrs. Milles and Underwood had showed how caries arose we did not understand yet why some people who one would expect to suffer from it seemed to be quite immune. The speaker also alluded to the necessity which exists for Dentists, who work under unhygienic surroundings, to take care of their health in the matter of recreation and exercise.

Mr. Ashley Barrett, in responding for the Past Students, said there were two forces which bound them together, a common love for their profession and a love for their old School.

Mr. W. H. Thomas, in replying for the Present Students, criticised the new arrangements for the award of the Saunders' Scholarship. Formerly the results was determined by success in the ordinary Class Examinations, but in the future there would be a special examination, and it was just possible that the best man might be indisposed on the one particular day.

Mr. Edward Trimmer proposed "The Hospital and School" in a terse speech, and everyone was glad to learn from Mr. Allen Stoneham, in his reply, that the contract for the new hospital had been signed and the building commenced.

Mr. E. Lloyd-Williams, who responded for the School, whilst highly praising the teaching, thought that now-a-days there was a tendency to do too much for the Student, who should be encouraged to rely more upon his own endeavours.

Professor A. S. Underwood, in a quaint speech, proposed "The Visitors," for whom Mr. Pearce Gould replied.

Mr. R. H. Woodhouse, in proposing the health of "The Chairman," alluded to the very prominent part Mr. Storer-Bennett had taken in the work of the Hospital and School and professional life generally.

The Chairman's reply brought the speeches to a conclusion.

## To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
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